



SPECIAL REPORT ON ANADROMOUS STREAM SURVEYS OF CLEVELAND
PENINSULA, INCLUDING EMERALD BAY, VIXEN INLET, UNION BAY,
CLARENCE STRAIT, BOND BAY, SPACIOUS BAY, AND PORTIONS OF
PORT STEWART AND HELM BAY

Subdistricts 107-10 and 102-80

Volume I

By:
John Edgington
Craig Burns
and
Jim Cariello

March 1985

ADF&G TECHNICAL DATA REPORTS

This series of reports is designed to facilitate prompt reporting of data from studies conducted by the Alaska Department of Fish and Game, especially studies which may be of direct and immediate interest to scientists of other agencies.

The primary purpose of these reports is presentation of data. Description of programs and data collection methods is included only to the extent required for interpretation of the data. Analysis is generally limited to that necessary for clarification of data collection methods and interpretation of the basic data. No attempt is made in these reports to present analysis of the data relative to its ultimate or intended use.

Data presented in these reports is intended to be final, however, some revisions may occasionally be necessary. Minor revision will be made via errata sheets. Major revisions will be made in the form of revised reports.

SPECIAL REPORT ON ANADROMOUS STREAM SURVEYS OF CLEVELAND PENINSULA,
INCLUDING EMERALD BAY, VIXEN INLET, UNION BAY, CLARENCE STRAIT,
BOND BAY, SPACIOUS BAY, AND PORTIONS OF PORT STEWART AND HELM BAY¹

Subdistricts 107-10 and 102-80

Volume I

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John Edgington

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Jim Cariello

Alaska Department of Fish and Game
Division of Commercial Fisheries
Petersburg, Alaska

March 1985

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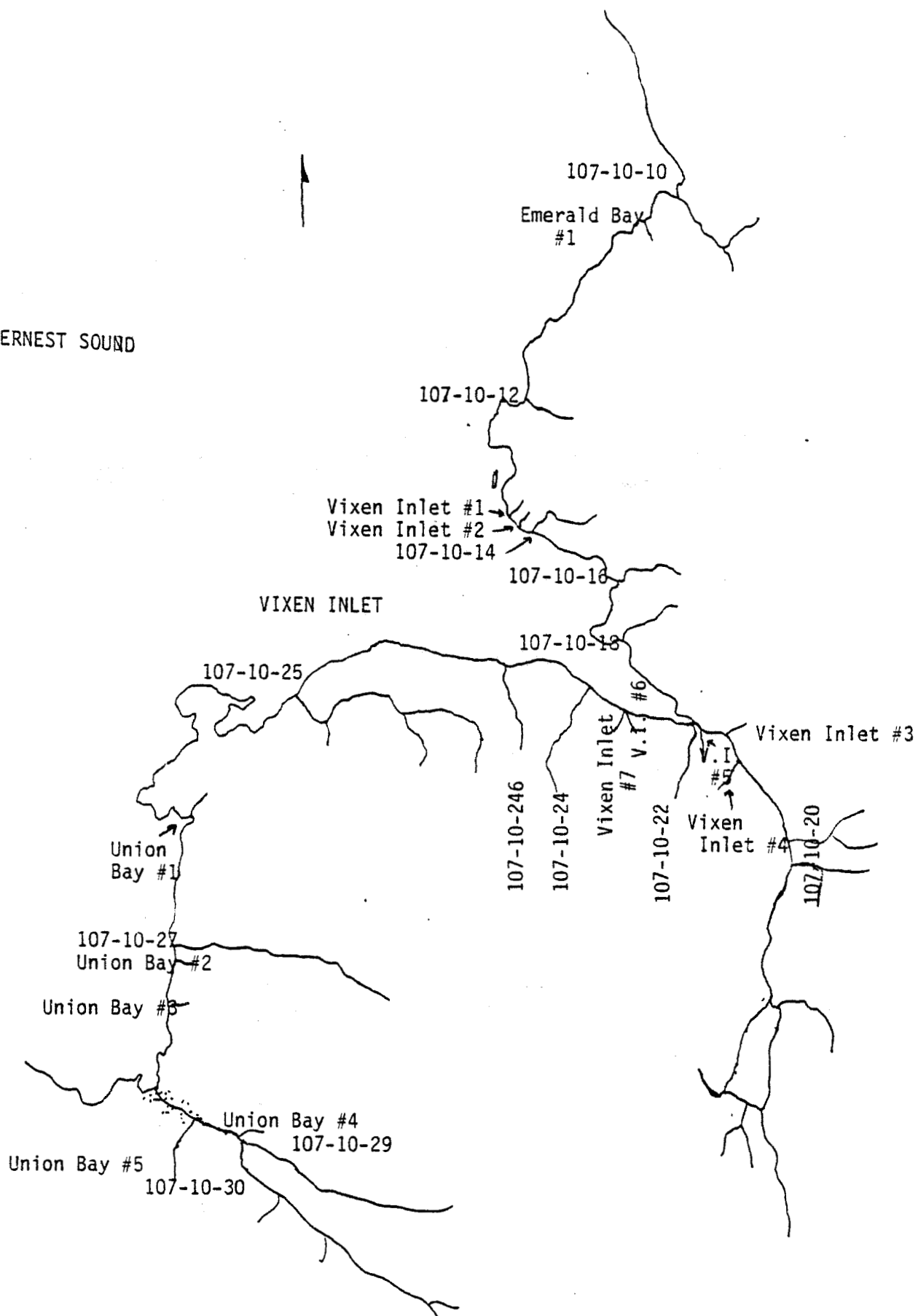
Explanation

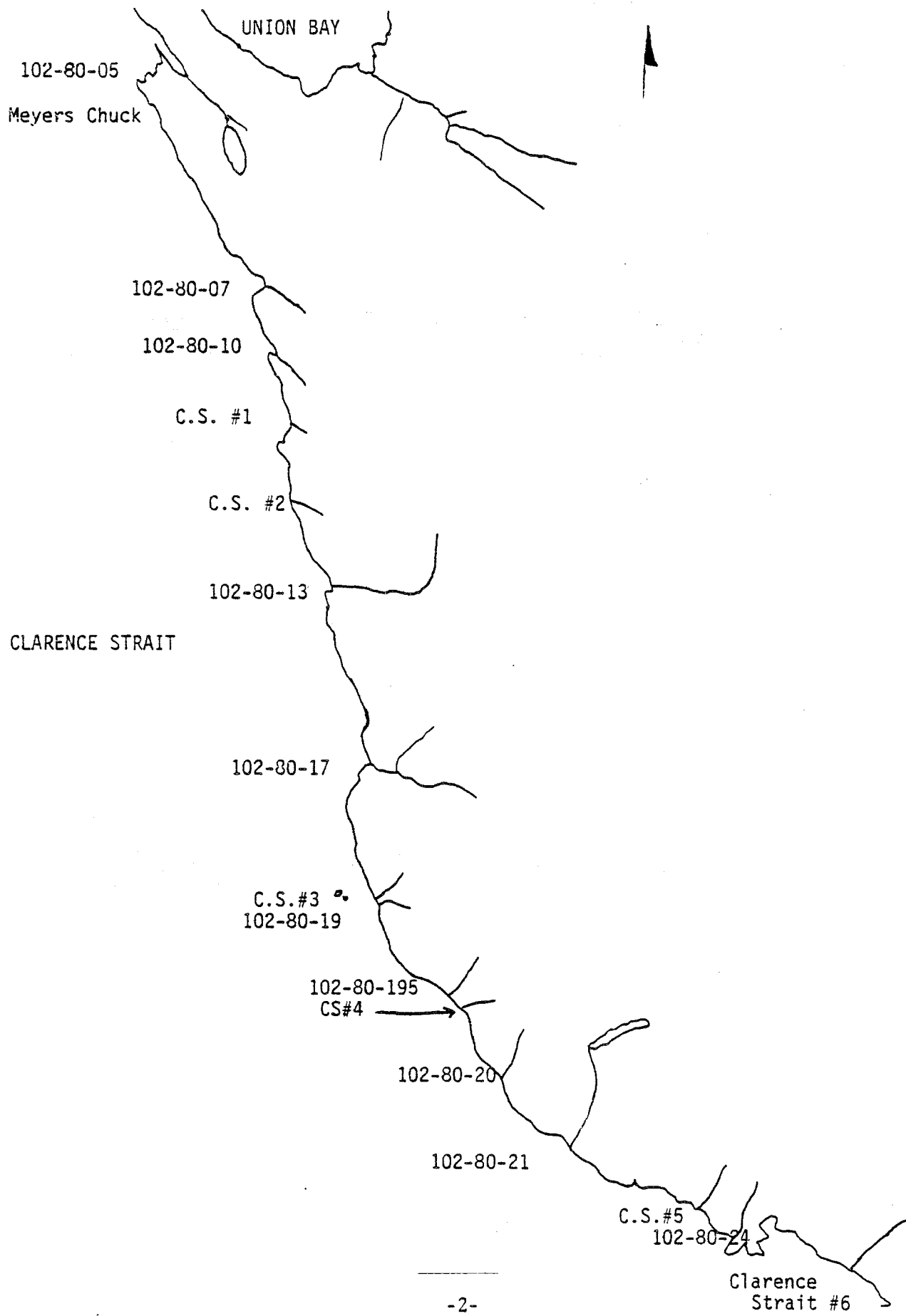
This report contains no Table of Contents, Abstract, or any other means of determining what the content is. So I went through the report, and determined that it consists of a catalog of various streams. With this in mind, I set my bookmarks for the PDF file to the individual streams categorized in the report.

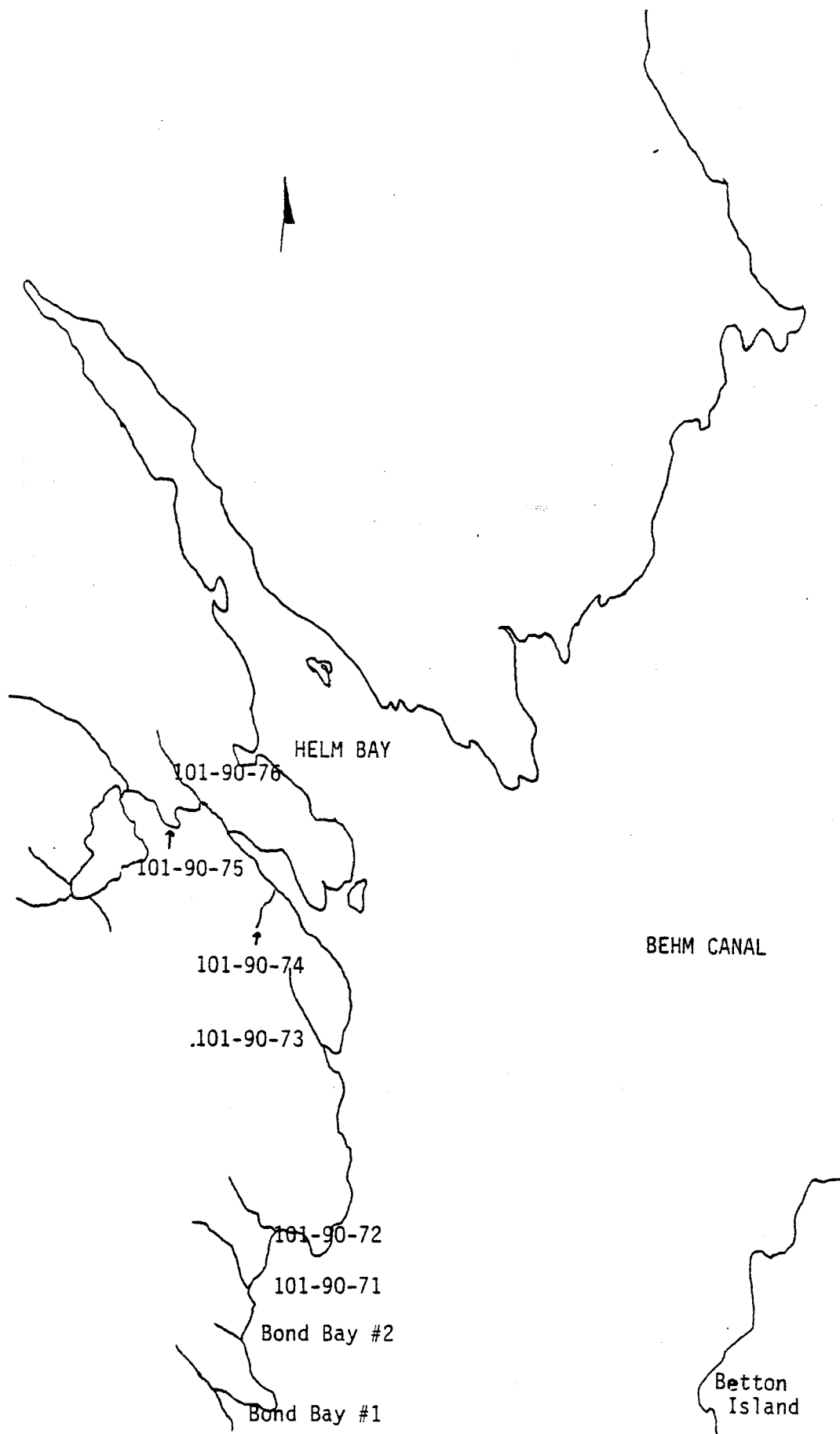
Also, the page numbers in the report are inconsistent. With the exception of one page number that is repeated, the first section appears to be numbered correctly from 1 to 489, while the second section appears to be a separate publication that has been inserted at the end of the volume.

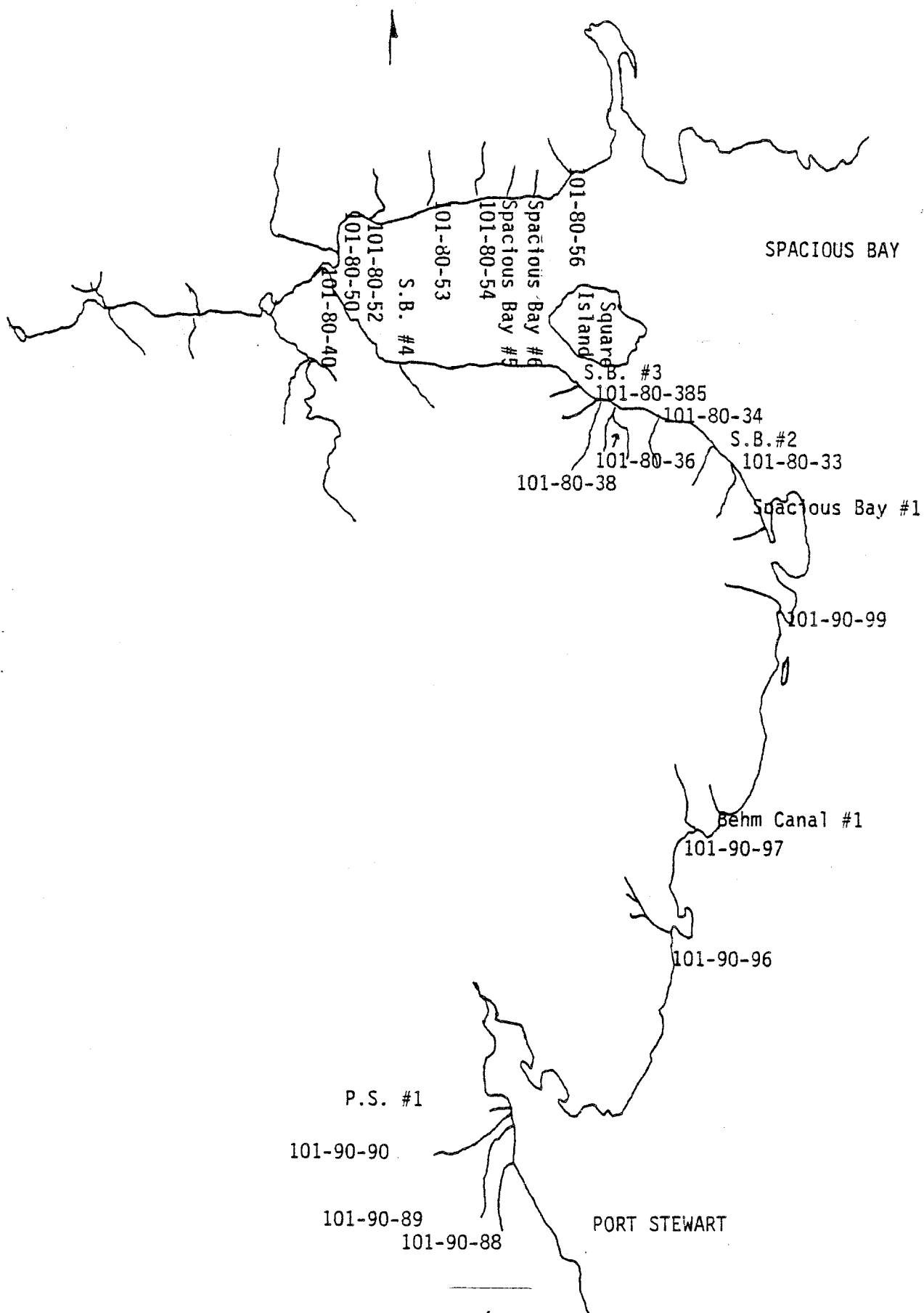
Mae Tanner
July, 2006

ERNEST SOUND









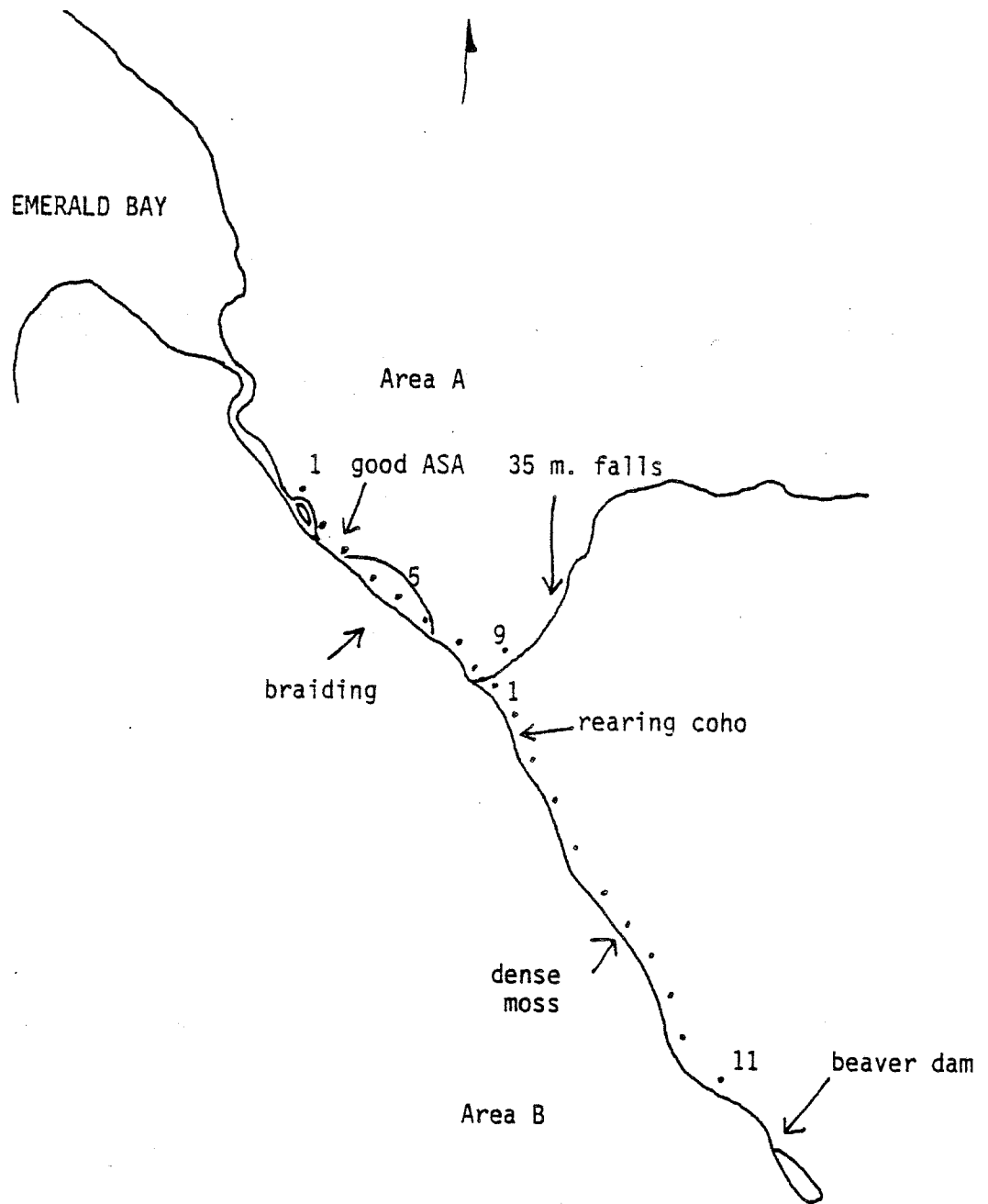
STREAMS NOMINATED FOR INCLUSION IN THE
ADF&G HABITAT DIVISION ANADROMOUS STREAM CATALOG

The following streams included in the 1985 Cleveland Peninsula Aquatic Survey Catalog were designated the following stream numbers by the ADF&G Habitat Division:

<u>Temporary Designation</u>	<u>Habitat Division Designated Number</u>
Vixen Inlet #3	107-10-10190
Vixen Inlet #5	107-10-10210
Union Bay #4	107-10-10285
Union Bay #5	107-10-10310
Clarence Strait #1	107-80-10110
Clarence Strait #2	107-80-10120
Bond Bay #1	101-90-10705
Bond Bay #2	101-90-10707
Port Stewart #1	101-90-10905
Behm Canal #1	101-90-10975
Spacious Bay #3	101-80-10386
Spacious Bay #4	101-80-10390

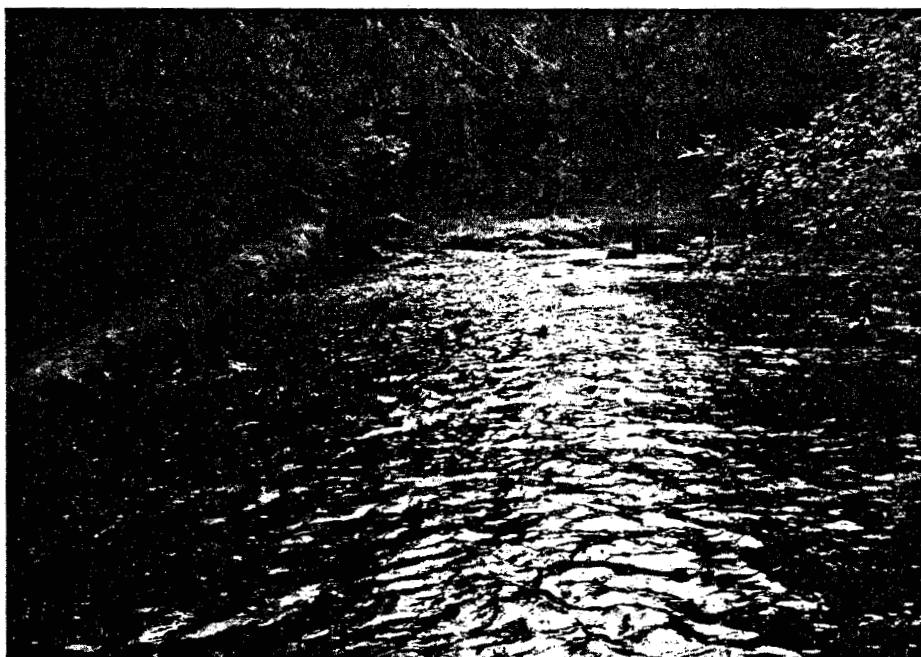
107-10-10 appears to be a rather short, but productive system. A 35 m. barrier falls is present about 900 m. up the mainstem. Sections 1 and 2 may be influenced by high tides and contain good substrate and excellent ASA. Sections 2 through 8 are very braided with two and three channels passing through the flood plain. The substrate is rather large and the stream velocity is fast, but there is a large amount of ASA and it appears to be good quality with many CS and PS utilizing the braided channels and holding in the pools. There is a lack of debris or undercut banks in Area A, but large numbers of coho were observed in the limited good quality rearing areas. A 1984 season record of 56 rearing coho were captured in a single minnowtrap in Section 5.

Area B contains fair amounts of ASA up to Section 8. Rearing coho were abundant and excellent rearing habitat was present up to Section 5. Sections 6 through 11 have little rearing habitat as the stream becomes primarily shallow and fast. A dense moss growth covers the substrate and the ASA decreases dramatically also. A large active beaver dam is present at the end of Section 11. No rearing fish were observed or captured above the beaver dam.





1. Upper ITZ. Excellent ASA.



2. At the end of Section #2. Good ASA.



3. A braided channel which runs along the left bank from Section #3 to Section #7. This photo was taken at the lower end.



4. 75 m. into Section #6.

107-10-10 Area A

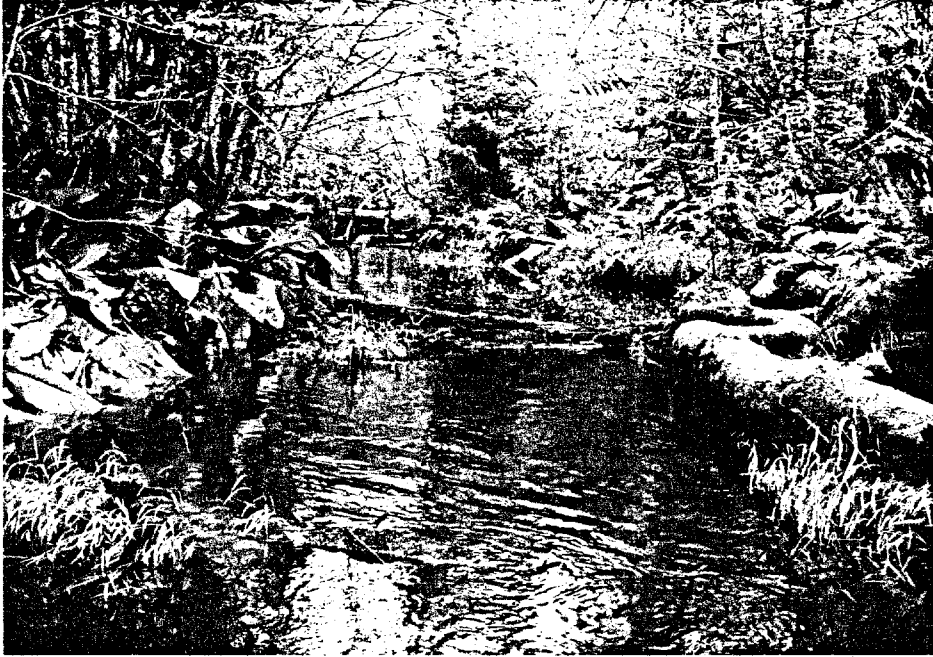


5. Section 9.



6. 30m. barrier falls in Section #10.

107-10-10 Area B



1. Section #2.



2. Section 11.



3. Section 3: Beaver dam 50 m. into Section #12

107-10-10

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	16	80	1280					
2	100	10	80	800					
3	100	26	60	1560					
4	100	6	50	300					
5	100	7	40	280					
6	100	9.5	25	237.5					
7	100	6.5	30	195					
8	100	6	35	210					
9	100	5.7	15	85.5					
Total Area "A" ASA				4,948 m ²					
1	100	8	5	40					
2	100	4.5	10	45					
3	100	3	60	180					
4	100	5	25	125					
5	100	4.1	20	82					
6	100	3	15	45					
7	100	2	15	30					
8	100	2	10	20					
9	100	3	1	3					
10	100	3	1	3					
11	100	1.5	1	1.5					
Total Area "B" ASA				574.5m ²					

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area A ADF&G No. 107-10-10

1. Section Number	1	2	3	4	5	6	7	8	9
2. Channel Type									
3. Riparian Vegetation Class	C-1	C-1	C-1	C-1 D-2	C-1 D-2	C-3 D-2	C-1 C-6	C-6	C-1
4. Incision Depth (m)	.5	.5	.5	.5	.5	.5	.5	.5	.5
5. Lower Bank Composition									
a. bedrock or boulder		5	50	10	20	20	30	30	50
b. rubble	10	25	20	10	20	30	30	30	40
c. cobble	45	30	15	10	20	20	30	30	5
d. decomposed organic material									
e. gravel	40	25	10	10	20	20	10	10	5
f. sand & silt	5	15	5	60	02	10			
6. Bed substrate composition									
a. bedrock or boulder	1	2	20	25	30	40	40	35	70
b. rubble & cobble	44	48	45	40	40	40	40	45	25
c. coarse gravel	25	25	20	20	15	10	10	10	5
d. fine gravel and sand	30	25	15	15	15	10	10	10	
e. silt-clay deposits									

7. Comments

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area B ADF&G No. 107-10-10

1. Section Number	1	2	3	4	5	6	7	8	9
2. Channel Type									
3. Riparian Vegetation Class	D-2	C-5	C-5	C-6	C-1	C-1,5	C-5	C-5	C-5
4. Incision Depth (m)	.5	.5	.5	.5	.5	.5	.5	.5	.5
5. Lower Bank Composition									
a. bedrock or boulder	20			25	30	35	30	40	70
b. rubble	20		10	25	30	35	30	40	20
c. cobble	10		50	25	30	20	30	10	10
d. decomposed organic material									
e. gravel	20		20	15	5	5	10	10	
f. sand & silt	30	100	20	10	5	5			
6. Bed substrate composition									
a. bedrock or boulder				10	15	50	50	50	65
b. rubble & cobble	5	5	30	50	50	35	30	30	25
c. coarse gravel	10	25	30	20	15	10	15	15	5
d. fine gravel and sand	85	70	40	20	20	5	5	5	5
e. silt-clay deposits									

7. Comments

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area B ADF&G No. 107-10-10

1. Section Number	10	11							
2. Channel Type									
3. Riparian Vegetation Class	C-4	C-4							
4. Incision Depth (m)	.5	.5							
5. Lower Bank Composition									
a. bedrock or boulder	80	80							
b. rubble	15	15							
c. cobble	5	5							
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	65	65							
b. rubble & cobble	25	25							
c. coarse gravel	5	5							
d. fine gravel and sand	5	5							
e. silt-clay deposits									

7. Comments

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 107-10-10 Date 8/11/84

1. Reach	1I	1I	2	2	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2	1.5	1	1.25	2	2	3.5	2.5	3
5. Water Quality	4								
6. Water Width a. channel	16	28	40	14	17	12	8.0	20	8.7
b. water	16	10	26	6	7	9.5	6.5	6	5.7
c. special character	1	1	1	1	1	1	1	1	1
7. Water Type % SS	10	15	20	15	15	10	5	5	5
SF	90	85	80	80	70	75	80	90	90
DS				5	10	5			
DF					5	10	15	5	5
8. Undercut Banks (m) left	0	1	15	15	15	5	0	0	1
right	0	1	0	5	0	0	0	0	0
9. Debris Cover % small	0	0	1	1	1	1	0	1	0
large	1	1	5	5	3	1	1	10	0
10. Riparian Vegetation %	5	1	1	5	5	5	1	5	1
11. Substrate %:									
a. boulders	1	2	20	25	30	40	40	35	70
b. cobble	44	48	45	40	40	40	40	45	25
c. gravel	45	40	30	30	25	15	15	15	5
d. sand	10	10	5	5	5	5	5	5	
e. organic muck									
f. bedrock									
g. other									
12. ASA	80	80	60	50	40	25	30	35	15
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	50/50	50/50	50/50	100	100	100	50/50	25/75	50/50
b. type	A/B	A/B	A/B	A	A	A	A/B	A/B	A/B
15. Average Depth (cm)	7.5	10	7.5	7.5	50	10	15	30	30
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3	3	3	3	3	13	13	13	13
b. density	1	1	1	1	1	1	1	1	1
19. Sampling	-	-	-	-	Y	-	-	-	Y
20. Rearing Area	10	10	15	20	25	15	5	10	5
21. Comments									

Section 1: Channel to left for Section contains just a trickle of water.
 Section 2: Poor rearing habitat. The water is uniformly shallow with no cover.
 Section 3: Evidence of logging present. Stream forks at start of Section. The left fork is about 350 m. long and rejoins Area A in Section 6. Substrate was primarily cobble and gravel with ASA averaging 50%. Sand was heavy in places, but

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3, continued: pink salmon were plentiful. Much bear activity was observed along the banks. Another active channel leaves to the left 30 m. into Section 3 and rejoins the stream at the end of Section 4. This channel is a mirror image of Sections 3 and 4 and contains equivalent amounts of ASA and rearing habitat.

Section 4: Good numbers of coho fry observed in the side pools. Extensive handlogging sign is present. There is a braided channel along the right bank for the last 30 m. of the Section.

Section 7: Left bank gets steep for half the Section. 85 m. into the Section, the stream splits into two short equal channels. A good holding pool is present before the fork.

Section 8: A swift, active channel enters from the left bank at the start of the Section. This channel rejoins the mainstem midway into Section 9. A tributary surveyed as Area B enters from the right bank 40 m. into the Section.

Section 9: Both upper banks get steep at end of Section. The survey is discontinued at the end of the Section. A two-tiered barrier falls with an overall height of about 35 m. is present 50 m. beyond the end of the survey. Above, the falls the gradient is 3 to 5% for 300 m. The substrate is predominately boulders and bedrock. Patches of ASA are present. The rearing habitat is limited to pools between swift stretches of water.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area B ADF&G No. 107-10-10 Date 8/11/84

1. Reach	1	1	1	1	1	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	.5	.5	1.5	3	2	6	6	6	5
5. Water Quality	4								
6. Water Width a. channel	8	4.5	3.0	5.0	4.5	3.0	2.0	3.0	3.0
b. water	8	4.5	3.0	5.0	4.1	3.0	2.0	2.0	3.0
c. special character	1								
7. Water Type % SS	5	30	25	25	20	20	10	10	10
SF	5	30	70	75	80	79	85	90	90
DS	90	40	5			1	5		
DF									
8. Undercut Banks (m) left	30	30	20	75	60	30	30	10	10
right	30	30	25	80	45	40	20	10	10
9. Debris Cover % small	1	5	2	2	2	1	1	1	1
large	20	25	10	10	5	5	5	5	5
10. Riparian Vegetation %	20	30	25	20	20	45	15	15	15
11. Substrate %:									
a. boulders				10	15	50	50	50	65
b. cobble	5	5	30	50	50	35	30	30	30
c. gravel	20	35	45	30	25	15	20	20	5
d. sand	75	60	25	10	10	10	15	10	15
e. organic muck									
f. bedrock									
g. other									
12. ASA	5	10	60	25	20	15	15	10	1
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	50/50	100	100	100	100	100	100	100	100
b. type	A/B	A	A	A	B	B	B	B	B
15. Average Depth (cm)	30	40	30	20	20	10	15	10	15
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	13	13	1/3	1/3	1/3	1/3	1	1	1
b. density	3	3	2/2	3/2	3/2	3/2	1	1	1
19. Sampling	Y	-	-	Y	-	-	-	-	-
20. Rearing Area	95	70	40	20	20	20	15	10	10
21. Comments									

Section 1: Area B's flow was estimated a .15 m³/sec. The stream enters a swampy area with excellent rearing habitat provided. The water is dark, deep and there is a heavy debris load. The right bank is steep, but the left upper bank is a flood plain. Many adult PS and CS were holding in the pools.

Section 2: A small tributary with an estimated flow of .03 m³/sec enters from the left bank at the end of the Section. The tributaries gradient is 5% and there is little ASA or rearing habitat provided. The gradient increases as the terrain gets steeper.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: Good numbers of rearing coho were seen where the water was shallow enough for observation. The last 50 m. of the Section contains excellent ASA.

Section 4: Moss covers over half the substrate in Sections 4 and 5.

Section 5: The numbers of rearing fish observed decreased. The upper banks begin to get steep.

Section 6: The rearing habitat quality dramatically decreases. There are few pools and little debris. Even the plentiful undercut, but stable banks contain rather swift water present.

Section 7: The density of the moss growth is quite heavy and continues to be heavy throughout the rest of the survey.

Section 9: A small tributary from the left bank enters at the start of the Section. The gradient is 10% and there is no rearing area or ASA present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area B ADF&G No. 107-10-10 Date 8/11/84

1. Reach	2	2							
2. Section	10	11							
3. Section Length (m)	100	100							
4. Gradient	4.5	4							
5. Water Quality	4	4							
6. Water Width a. channel	3.0	1.5							
b. water	3.0	1.5							
c. special character	-	-							
7. Water Type % SS	10	10							
SF	89	89							
DS	1	1							
DF									
8. Undercut Banks (m) left	10	20							
right	10	25							
9. Debris Cover % small	1	1							
large	3	3							
10. Riparian Vegetation %	25	25							
11. Substrate %:									
a. boulders	65	65							
b. cobble	25	25							
c. gravel	10	10							
d. sand									
e. organic muck									
f. bedrock									
g. other									
12. ASA	1	1							
13. Gravel Shape	2	2							
14. Streambank Vegetation									
a. percentage	100	100							
b. type	B	B							
15. Average Depth (cm)	10	10							
16. Beaver Activity	5	5							
17. Potential Barrier	-	-							
18. Aquatic Vegetation									
a. type	1	1							
b. density	1	1							
19. Sampling	-	-							
20. Rearing Area	10	10							

21. Comments

Section 10: The vegetation on the upper banks show signs of muskeg influence. Moss now covers over 90% of the substrate.

Section 11: Survey discontinued at end of Section. About 50 m. beyond Section 11 is a large active beaver dam area. No rearing fish have been observed since Section 8. No rearing fish are observed or sampled above the beaver dam.

FISH SAMPLING FORM

ADF&G No. 107-10-10 Date 8/11/84 Stream Name _____
 Survey Area Area A H₂O Temp. _____ Bait Branswager/fresh eggs

Trap No.	Time Set	Time Pulled	Species	Comment
1	0940	1600	56-SS all between 45 and 65 mm. except for one that was larger	Section 5
2	1100	1140	ST-90mm	Section 9

FISH SAMPLING FORM

ADF&G No. 107-10-10 Date 8/11/84 Stream Name _____
 Survey Area B H₂O Temp. _____ Bait Braunswager/fresh
eggs

Trap No.	Time Set	Time Pulled	Species	Comment
1	1200	1520	SS CT DV 90 88 48 80 105 50 50 45 120 65 55 55 55 80 65 65 70 70 85 90 50 85 55 90 85 55 50 75 60 50 55 45 75	Section 1
2	1220	1505	SS CT 80 85 120 75 80 55	Section 4
3	1410	1440	∅	above beaver dam

PEAK ESCAPEMENT RECORD

107-10-10

DATE	PINK	CHUM	OTHER SPECIES	REMARKS
8/16/65	200			
8/17/66	200			
8/29/70	2,000			
9/19/71	2,400	10		
8/8/72	502			
8/23/73	500			
8/5/75	10,000			
8/23/76	7,700			
9/2/77	10,100			
8/16/78	1,500			
8/22/79	2,710			
9/17/80	5,200			
8/25/81	8,118	12		
9/14/82	10,778.			

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

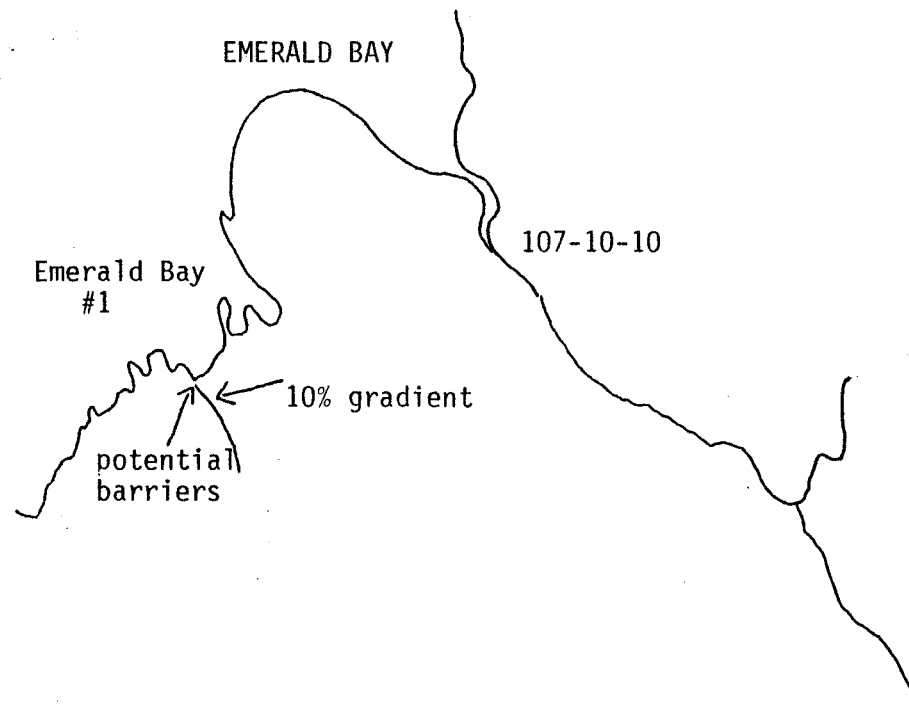
Part II.

1. Stream Name Emerald Bay #1 3. ADF&G Catalogue No. _____
3. USGS Map No. Craig D-1 4. Legal Location R86E, T69S, S-15
5. Latitude and Longitude 55°02', 132°03'10" 6. Agency Unit 05
7. Aerial Photo No. 0027, 1273, 29, 9-12-73, 02190 8. Mgmt Area K29-721
9. Estimated Flow .02 m³/sec 10. Flow Stage 3
11. Land Use a. present none observed b. historical none observed
12. Temperature Sensitivity and/or origin 5
13. Access 2 14. Stream Temperature _____
15. pH - 16. Intertidal Zone _____ a. Gradient 3
b. Bottom type 1. fines 15 2. gravel/small cobble 50
3. large cobble/boulders/bedrock 35
c. ASA Poor - large cobble and fines
d. Schooling only in small bay
e. Shellfish potential a few clams observed
f. Anchorage fair for small skiff - unprotected

17. Comments

Emerald Bay #1 has several potential barriers within 30 m. of the ITZ. The stream goes under a bank and 1m debris/bedrock falls is present. The substrate is predominately large flat cobble. There is little ASA or rearing habitat. No rearing fish were observed. The stream goes to a 10% gradient within 50 m. The stream is .6 to 1m wide and averages 8-cm deep. Evidence of highwater discharges were present on the banks.

18. Investigators Burns/Cariello 19. Weather 3
20. Date 8/11/84 20. Time 1640-1705



Emerald Bay #1



1. Typical habitat in the first 50 m.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-2 2. Historical Fish PS,CS,SS,DV,CT

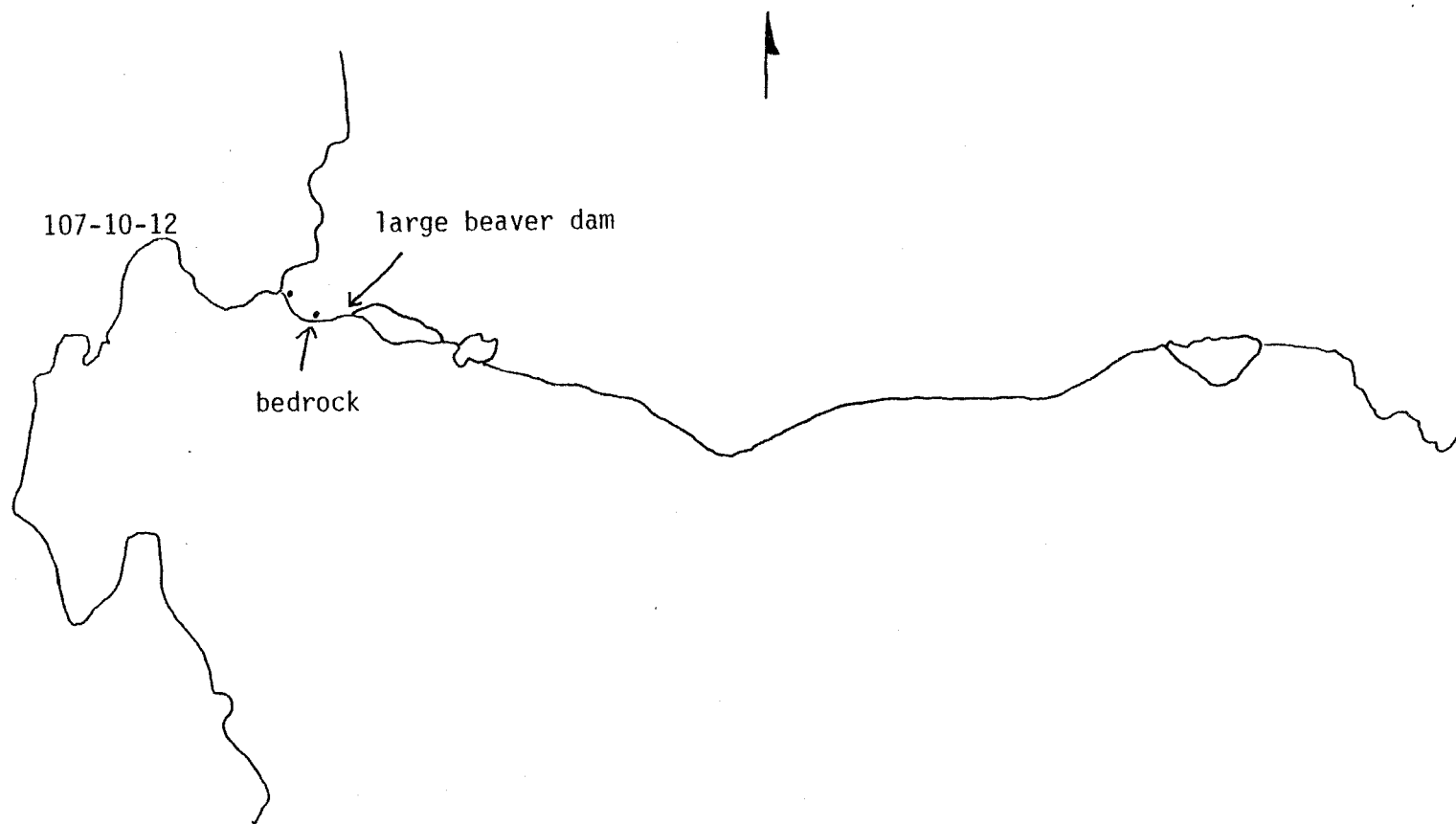
Part II.

1. Stream Name _____ 3. ADF&G Catalogue No. 107-10-12
3. USGS Map No. Craig D-1 4. Legal Location R86E,T70S,S-28
5. Latitude and Longitude 50°1'12", 132°05' 6. Agency Unit 05
7. Aerial Photo No. 0027,1273,27,9-12-73,02190 8. Mgmt Area K29-720
9. Estimated Flow .2m³/sec 10. Flow Stage 3
11. Land Use a. present none observed b. historical none observed
12. Temperature Sensitivity and/or origin 5,4,1
13. Access 2 14. Stream Temperature 14°C
15. pH 5 16. Intertidal Zone _____ a. Gradient high tide
b. Bottom type 1. fines high tide 2. gravel/small cobble _____
3. large cobble/boulders/bedrock _____
c. ASA high tide
d. Schooling small pool at upper end of ITZ visible
e. Shellfish potential high tide
f. Anchorage fair - tidal flat with large rocks

17. Comments

107-10-12 has a large active beaver dam and pond present 180 m. from the ITZ. There is little if any ASA or rearing area below the beaver dam. The substrate is predominately bedrock. The stream is uniformly swift with little debris or cover present. No rearing fish were observed or captured below the beaver dam. Only sticklebacks were captured above the beaver dam.

18. Investigators Burns/Cariello 19. Weather 3
20. Date 8/10/84 21. Time 1445-1545



107-10-12



1. ITZ.



2. 60 m. into Section #2

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-12

1. Section Number	1	2							
2. Channel Type									
3. Riparian Vegetation Class	C5	C5							
4. Incision Depth (m)	.2	.2							
5. Lower Bank Composition									
a. bedrock or boulder	100	100							
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	96	95							
b. rubble & cobble	1	3							
c. coarse gravel	1	1							
d. fine gravel and sand	2	1							
e. silt-clay deposits									

7. Comments

107-10-12

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Lenght (m)	Width (m)	ASA %	ASA Total
1	100	3.4	0	0					
2	100	3.7	0	0					
Total ASA				0m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-12 Date 8/10/84

1. Reach	1	1							
2. Section	1	2							
3. Section Length (m)	100	80							
4. Gradient	5	3.5							
5. Water Quality	4	4							
6. Water Width a. channel	3.4	3.7							
b. water	3.4	3.7							
c. special character	-	-							
7. Water Type % SS	5	5							
SF	50	70							
DS	5	5							
DF	30	20							
8. Undercut Banks (m) left	0	0							
right	0	0							
9. Debris Cover % small	1	1							
large	10	5							
10. Riparian Vegetation %	50	50							
11. Substrate %:									
a. boulders	1	5							
b. cobble	1	3							
c. gravel	2	1							
d. sand	1	1							
e. organic muck									
f. bedrock	95	90							
g. other									
12. ASA	0	0							
13. Gravel Shape	1	1							
14. Streambank Vegetation									
a. percentage	100	100							
b. type	8	8							
15. Average Depth (cm)	15	8							
16. Beaver Activity	5	1							
17. Potential Barrier	-	-							
18. Aquatic Vegetation									
a. type	1	1							
b. density	1	1							
19. Sampling									
20. Rearing Area	10	10							
21. Comments									

Section 1: The substrate is predominately bedrock. The water is swift and there is little rearing habitat provided. Moss is dense on the bedrock and there is little if any, ASA present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 2: 80 meters into Section is a large active beaver dam. The survey was discontinued. A helicopter reconnaissance above here was made on September 4. There were no suitable landing zones near the stream above the beaver dam area. A trap was set at the upper part of the beaver dam lake and only two sticklebacks were captured. It was extremely difficult to follow the stream in the helicopter due to the tall timber around it. The stream was very dark in color above the beaver dam. There were no gravel bars or riffles apparent from the helicopter.

FISH SAMPLING FORM

ADF&G No. 107-10-12 Date 8/10/84 Stream Name _____Survey Area _____ H₂O Temp. 14°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1445	1545	Ø	ITZ
2	1455	1540	Ø	Section 2
3	1505	1535	Ø	above beaver dam
4	1115	1215	2 SB	above beaver dam 9/4/84

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Vixen Inlet #1 2. ADF&G Catalog No. _____

3. USGS Map No. Craig D-1 4. Legal Location R87E.T70S.S-4

5. Latitude and Longitude 132°05'10", 55°50'00" 6. Agency Unit 05

7. Aerial Photo No. 0027,1273,26,9-12-73,02190 8. MGMT Area K29-720

9. Estimated Flow .04 m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical logging near ITZ

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 12.5°C

15. pH 4.5 16. Intertidal Zone high tide a. Gradient _____

b. Bottom type 1. fines _____ 2. gravel/small cobble _____

3. large cobble/boulders/bedrock _____

c. ASA _____

d. Schooling _____

e. Shellfish potential _____

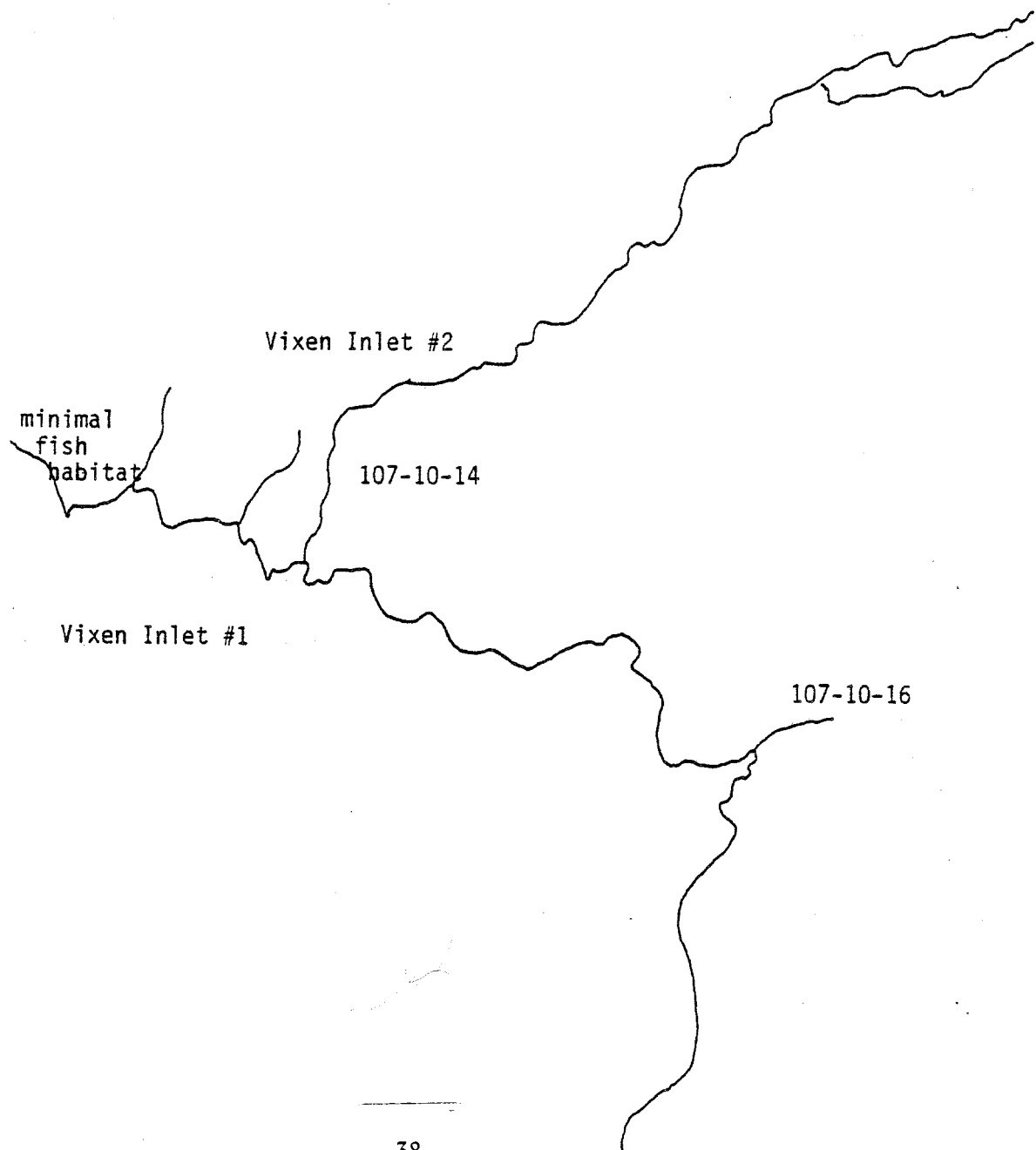
f. Anchorage fair for skiff, unprotected

17. Comments

The survey was conducted near high tide and no ITZ data could be collected. No rearing fish were captured or observed in Vixen Inlet #1. There are patches of ASA present and adequate rearing habitat available, however. The first 100 m. is dominated by large cobble, boulders and fine gravel. The substrate then changes to coarse gravel with interstitial fines. The stream is .6 to 1m. in width and average: 10 cm. deep. the stream then enters a very brushy area surrounded by muskeg. Skunk cabbage is growing midstream 50 m. from the ITZ. The gradient is 4%. A late season survey would be needed to determine if Vixen Inlet #1 is anadromous stream.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 8/10/84 21. Time 1330-1415



Vixen Inlet #1



1. 100 m. from the ITZ.



2. 150 m. above the ITZ, rearing habitat is available.

FISH SAMPLING FORM

ADF&G No. _____ Date 8/10/84 Stream Name Vixen Inlet #1

Survey Area _____ H₂O Temp. 12.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1345	1410	Ø	no fry observed.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Vixen Inlet #2 2. ADF&G Catalog No. _____

3. USGS Map No. Craig D-1 4. Legal Location R87E.T70S.S-4

5. Latitude and Longitude 55°49'55", 132°05'00" 6. Agency Unit 05

7. Aerial Photo No. 0027, 1273, 26, 9-12-02190 8. MGMT Area K29-720

9. Estimated Flow .06 m³/sec. 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical logging near ITZ.

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 12.5°C

15. pH 4.5 16. Intertidal Zone _____ a. Gradient high tide

b. Bottom type 1. fines high tide 2. gravel/small cobble _____

3. large cobble/boulders/bedrock _____

c. ASA poor

d. Schooling high tide

e. Shellfish potential high tide

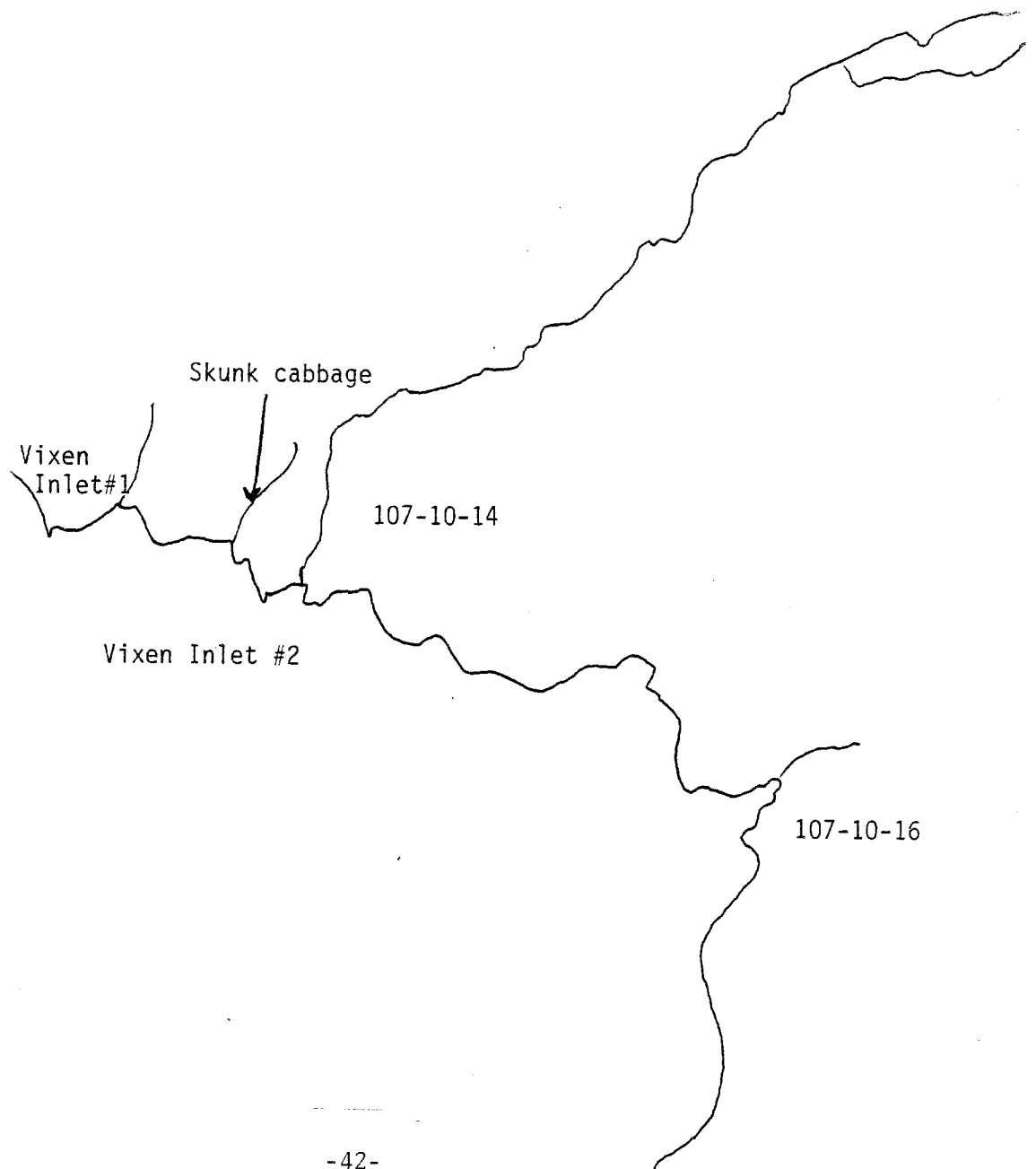
f. Anchorage fair-unprotected

17. Comments

The survey was conducted near high tide and not much of the ITZ data could be collected. The only ASA in the ITZ appeared to be a thin layer of gravel overlaying bedrock. Vixen Inlet #2 did not appear to have any rearing fish present. There is some rather poor quality ASA present for about 50 m. The substrate is mainly coarse and fine gravel with silt present interstitially. The stream averages 1.5 to 2 m. across and 5 cm deep. There is a potential of up to 50% poor quality ASA for the first 50 m. before the stream becomes a skunk cabbage patch. The survey was done when the stream was at a high water stage, and there still appeared to be several places where adult salmon passage would be hindered or blocked by shallow water. A late season survey would be the only way to determine if Vixen Inlet #2 is an anadromous stream.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 8/10/84 21. Time 1230-1315



Vixen Inlet #2



1. Gravel available 40 m. from ITZ. Shallow water may limit its accessibility, however.



2. The stream enters a swamp area 50 m. from the ITZ.

FISH SAMPLING FORM

ADF&G No. _____ Date 8/10/84 Stream Name Vixen Inlet #2
 Survey Area _____ H₂O Temp. 12.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1255	1315	Ø	no fry observed

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-4 2. Historical Fish PS,CS,DV,CT

Part II.

1. Stream Name _____ 2. ADF&G Catalogue No. 107-10-14

3. USGS Map No. Craig D-1 4. Legal Location R87E,T70S,S-4

5. Latitude and Longitude 132°04'50", 55°49',55" 6. Agency Unit 05

7. Aerial Photo No. 0027,1273,26,9-12-73,02190 8. Mgmt. Area K29-720

9. Estimated Flow .3 m³/sec 10. Flow Stage 3

11. Land Use a. present none observed b. historical logging near ITZ

12. Temperature Sensitivity and/or origin 5,4,1

13. Access 2 14. Stream Temperature 14°C

15. pH 4.5-5 16. Intertidal Zone _____ a. Gradient 2.5

b. Bottom type 1. fines 0 2. gravel/small cobble 10

3. large cobble/boulders/bedrock 90

c. ASA poor

d. Schooling small pool below stairstep falls in ITZ.

e. Shellfish potential abundant steamer clams and cockles.

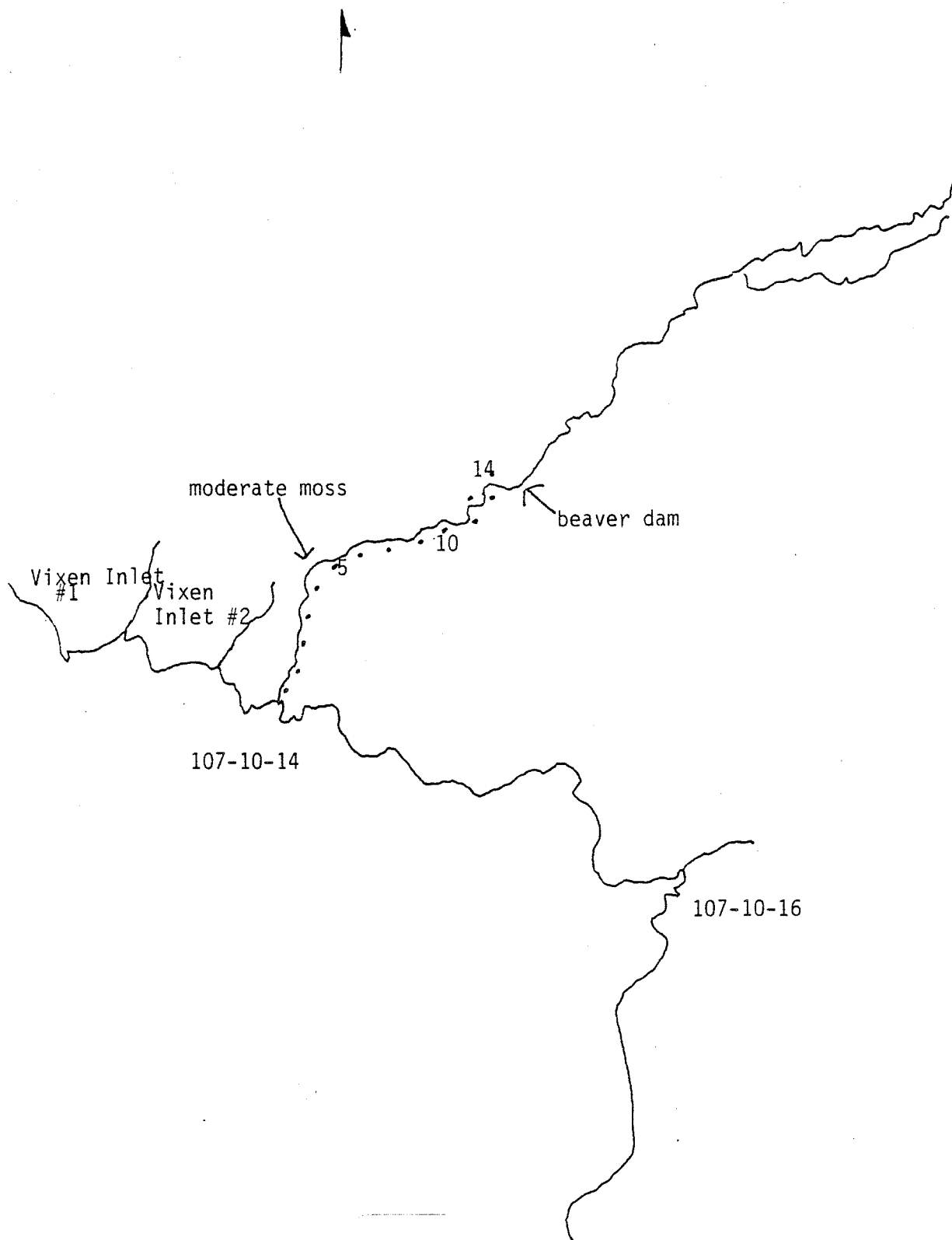
f. Anchorage fair for small skiff - unprotected

17. Comments
Dark water made the survey difficult.

107-10-14 contains fair amounts of ASA up to Section 11. ASA is not good quality however, with underlying bedrock and/or heavy moss growth present in many places. The rearing habitat is good with an adequate amount of large debris, pools, and overhanging riparian vegetation. No rearing fish were observed, however and the only fish sampled were sticklebacks. The dark color of the water made the survey difficult and rearing fish in low densities may well have escaped detection. The survey was discontinued at the end of the Section 14. A large active beaver dam area is present beyond here. No rearing fish were observed or trapped in the beaver pond. A reconnaissance by helicopter found little improvement in the fisheries habitat. No spawning area was found and only sticklebacks were captured in a minnow trap. The stream appears to alternate between stretches of mossy boulders and rather swift water with muskeg or beaver pond areas.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 8/10/85 21. Time 0816-1230





1. ITZ: The boulder/bedrock substrate provides poor ASA.



2. Section 3: Habitat typical of Reach 1, with a moderate moss coverage of the substrate although, patches of ASA are present.

107-10-14



3. Section 8: The gradient increases in Reach 2, with a lowering in the quality of the ASA and rearing habitat.



4. Section 12: The gradient decreases in Reach 3. The moss growth becomes dense on the substrate.

107-10-14



5. The survey was discontinued at a beaver pond beyond Section 14.

107-10-14

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	9.6	15	144					
2	100	2.4	5	12					
3	100	4.6	30	138					
4	100	2.1	50	105					
5	100	3.2	15	48					
6	100	3.9	15	58.5					
7	100	3.4	8	27.2					
8	100	2.4	1	2.4					
9	100	3.1	0	0					
10	100	3.2	15	48					
11	100	3.4	5	17					
12	100	3.3	5	16.5					
13	100	4.3	5	21.5					
14	100	2.9	0	0					

Total ASA

638.1m²

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-14

1. Section Number	1	2	3	4	5	6	7	8
2. Channel Type								
3. Riparian Vegetation Class	C5	C5	C5	C5	C5	C5	C5	C5
4. Incision Depth (m)	.1	.3	.7	.3	.2	.3	.2	.2
5. Lower Bank Composition								
a. bedrock or boulder	100	100	100	100	100	100	100	100
b. rubble								
c. cobble								
d. decomposed organic material								
e. gravel								
f. sand & silt								
6. Bed substrate composition								
a. bedrock or boulder	15	35	45	25	30	35	55	80
b. rubble & cobble	60	35	35	65	60	60	40	15
c. coarse gravel	15	15	15	10	10	5	5	5
d. fine gravel and sand	10	15	5					
e. silt-clay deposits								

7. Comments

Section 1: Lower banks mostly broken shale - unstable in several places.
Section 2 -8: Lower banks are covered with moss and liverwort over soil with shale and broken shale below. Fairly stable in most places.

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-14

1. Section Number	9	10	11	12	13	14			
2. Channel Type									
3. Riparian Vegetation Class	C5	C5	C5	C5	C5	C4			
4. Incision Depth (m)	.3	.7	.3	.7	.5	.3			
5. Lower Bank Composition									
a. bedrock or boulder	100	100	100	100	100	100			
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	95	45	85	45	20	90			
b. rubble & cobble	5	20	5	30	50	5			
c. coarse gravel		30	5	10	15				
d. fine gravel and sand		5	5	15	15	5			
e. silt-clay deposits									

7. Comments

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-14 Date 8/10/84

1. Reach	1	1	1	1	1	1	1	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	10	100	100	100
4. Gradient	4.0	3.5	3.5	3.5	4.0	4.0	6.0	6.0	7.0
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width a. channel	11	3	4.6	3.8	3.2	3.9	3.4	2.4	4.5
b. water	9.6	2.4	4.6	2.1	3.2	3.9	3.4	2.4	3.1
c. special character	1	-	-	-	-	-	-	-	-
7. Water Type % SS	20	20	20	15	15	15	10	10	5
SF	50	50	45	55	70	70	70	70	85
DS	25	25	25	20	10	10	10	10	
DF		5	10	10	5	5	10	10	10
8. Undercut Banks (m) left	0	10	25	25	30	30	5	15	5
right	0	10	15	40	30	30	5	15	5
9. Debris Cover % small	10	5	5	10	7	10	15	10	5
large	10	5	5	10	7	10	15	10	5
10. Riparian Vegetation %	15	25	25	35	35	40	25	25	15
11. Substrate %:									
a. boulders	15	25	25	20	30	35	50	50	5
b. cobble	60	35	35	65	60	59	40	15	5
c. gravel	20	30	20	10	10	5	5	5	
d. sand	5								
e. organic muck									
f. bedrock		10	20	5		1	5	30	90
g. other									
12. ASA	15	5	30	50	15	15	8	1	0
13. Gravel Shape	1,2	1,2	1	1,2	1	1	1	1	-
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	5	40	15	30	12	12	25	30	30
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1,4	1	1	1	1	1	1	1	1
b. density	3	2	2	2	2	2	2	1	1
19. Sampling	Y	-	-	-	-	-	-	-	-
20. Rearing Area	50	45	45	35	25	25	20	20	5
21. Comments									

Section 1: Substrate flat, ASA not the best quality. Braiding at start of Section. Broken shale along left bank, unstable in several places with some slides. Upper bank show signs of past logging. Good rearing with cover.

Section 2: Left bank is unstable broken shale in several places. Good rearing with cover.

Sections 2-9: Lower banks covered with moss and liverwort over soil. Fairly stable in most places with shale underneath.

Section 3: Some good gravel present, but bedrock is underlying most of it.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: Last half of Section has a moderate amount of moss growth on the ASA. Riparian vegetation mostly blueberry and young conifers.

Section 5: Substrate size increases. Heavy deer sign on upper banks.

Section 6: Small seep from left bank. More moss on ASA.

Section 7: ASA is large flat cobble with moss present - poor quality. Large pile of small debris. 80m. in. Right bank is unstable consisting of broken shale.

Section 8: Gradient increases. Rearing habitat and ASA decrease in quality.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 101-10-14 Date 8/10/84

1. Reach	2	3	3	3	3				
2. Section	10	11	12	13	14				
3. Section Length (m)	100	100	100	100	100				
4. Gradient	5.0	25	2.0	2.5	2.5				
5. Water Quality	4	4	4	4	4				
6. Water Width a. channel	3.2	3.4	3.3	4.3	2.9				
b. water	3.2	3.4	3.3	4.3	2.9				
c. special character	-	-	-	-	-				
7. Water Type % SS	10	15	40	35	20				
SF	65	75	50	55	70				
DS	20	10	10	10	10				
DF	5								
8. Undercut Banks (m) left	20	50	50	50	50				
right	20	50	50	50	50				
9. Debris Cover % small	0	1	15	0	1				
large	1	3	1	5	1				
10. Riparian Vegetation %	20	15	15	30	30				
11. Substrate %:									
a. boulders	5		20	10	30				
b. cobble	20	5	30	50	5				
c. gravel	35	10	20	25	2				
d. sand			5	5	3				
e. organic muck									
f. bedrock	40	85	25	10	60				
g. other									
12. ASA	15	5	5	5	0				
13. Gravel Shape	2	2	2	2	2				
14. Streambank Vegetation									
a. percentage	100	100	100	100	100				
b. type	B	B	B	B	C				
15. Average Depth (cm)	13	25	15	20	10				
16. Beaver Activity	5	5	5	5	5				
17. Potential Barrier	-	-	-	-	-				
18. Aquatic Vegetation									
a. type	1	1	1/4	1/4	1/4				
b. density	2	2	2/3	1/3	1/3				
19. Sampling	Y				Y				
20. Rearing Area	30	25	50	45	30				
21. Comments									

Section 10: Gradient decreases and stream begins meandering. Substrate size decreases. ASA has moderate moss growth - very poor quality.

Section 11: Bedrock underlying the ASA.

Section 12: Very difficult to see the substrate due to the depth and color of water. Grass growing in midstream.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 14: Survey discontinued at end of Section. Twenty meters beyond end of survey is the beginning of a large active beaver dam area. The dark color and depth of water make it impossible to distinguish the substrate. A helicopter reconnaissance of the upper reach was done 9/4/84. The stream enters another large beaver pond area about one mile further upstream. A minnow trap was set about 1000 m. above the end of the survey and only sticklebacks were caught. The stream was about 1 m. in width and too deep and dark to determine depth or substrate. Further downstream, the substrate was mossy boulders and provided no ASA.

FISH SAMPLING FORM

ADF&G No. 107-10-14 Date 8/10/84 Stream Name _____
Survey Area A H₂O Temp. 14⁰ Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0855	1230	4 SB	Section 1
2	1025	1040	Ø	Section 10
3	1125	1155	Ø	Beaver dam above Section 14
4	1125	1155	1 leech	Beaver dam above Section 14
5	1115	1145	7 SB	1000m beyond end of survey 9/4/84

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-16 2. Historical Fish PS,CS,SS

Part II.

1. Stream Name _____ 3. ADF&G Catalogue No. 107-10-16

3. USGS Map No. Craig D-1 4. Legal Location R87E,T70S,S-3

5. Latitude and Longitude 132°03'15", 55°49'28" 6. Agency Unit 05

7. Aerial Photo No. 0027,1273,25,9-12-73,02190 8. Mgmt Area K29-720

9. Estimated Flow .25 m³/sec 10. Flow Stage 3

11. Land Use a. present none observed b. historical old logging ITZ

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 13°

15. pH 4.5 16. Intertidal Zone _____ a. Gradient 1.5

b. Bottom type 1. fines 10 2. gravel/small cobble 30

3. large cobble/boulders/bedrock 60

c. ASA poor - upper ITZ is mainly bedrock

d. Schooling couple of small pools only

e. Shellfish potential Butter clams and cockles in good numbers

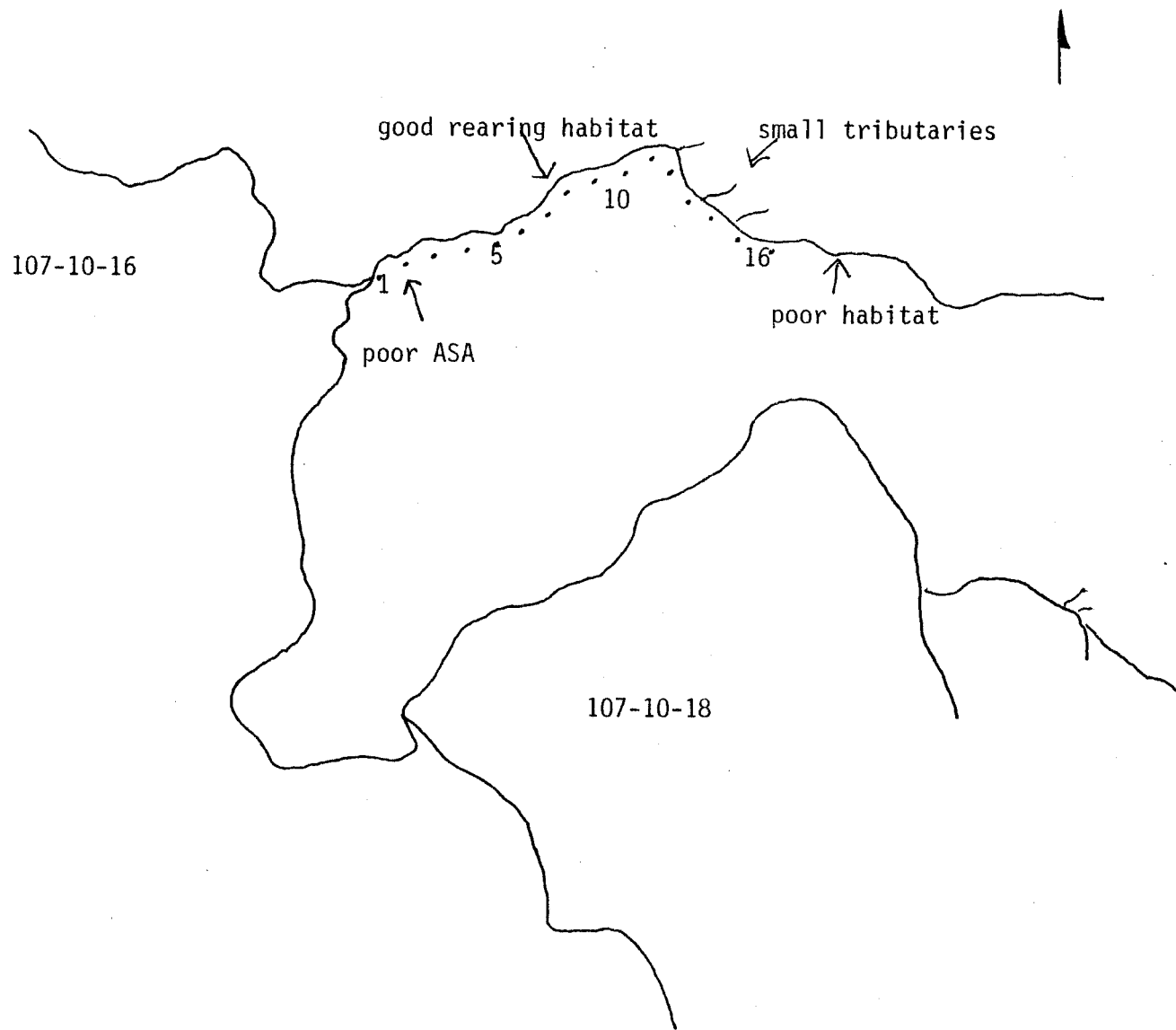
f. Anchorage fair for skiff - a small tidal flat is present.

17. Comments

107-10-16 does not have much ASA or rearing habitat until Section 7. The stream up to Section 7 had little debris and was uniformly shallow and fast. The substrate was large, flat and moss covered. The ASA that is present above Section 6 is for the most part very poor quality. The substrate has a moderate to dense covering of thick moss. The rearing habitat quality is good to excellent from Section 7 to 12. The gradient increases in Section 14 and the amount of debris and pool area declines markedly. The stream also begins forking off into small tributaries. Above Section 16, the gradient increases again and the stream is less than a meter in width. Very few rearing fish were observed or sampled. The water was very dark however, and hampered visibility.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 8/8/84 21. Time 0730-1230



107-10-16

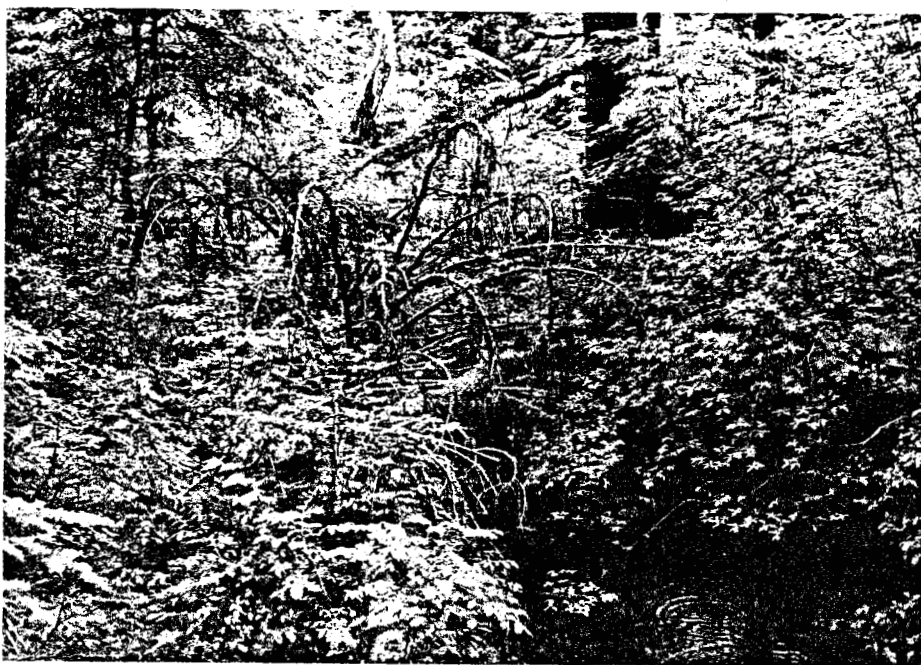


1. Lower ITZ. The upper ITZ is predominately bedrock.



2. The substrate is 50% bedrock in Section 2.

107-10-16



3. Excellent rearing habitat in Section 8.



4. The fisheries habitat is minimal quality 100 m. beyond Section 16 and the end of the survey.

107-10-16

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	4.6	10	46					
2	100	3.6	1	3.6					
3	100	3.7	1	3.7					
4	100	3.2	1	3.2					
5	100	2.6	1	2.6					
6	100	2.8	15	42					
7	100	3.4	15	51					
8	100	4.8	20	96					
9	100	3	5	15					
10	100	3.1	5	15.5					
11	100	2.9	5	14.5					
12	100	2	5	10					
13	100	2.3	5	11.5					
14	100	3.1	5	15.5					
15	100	.5	10	5					
16	100	1	1	1					
Total ASA				336.1m ²					

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-16

1. Section Number	1	2	3	4	5	6	7	8	
2. Channel Type									
3. Riparian Vegetation Class	C4	C4	C4	C4	C4	C4,5	C5,4	C5	
4. Incision Depth (m)	1	.2	.3	.3	1	.7	.7	.7	
5. Lower Bank Composition									
a. bedrock or boulder	100	100	100	100	100	100	100	100	
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	80	80	75	20	20	25	15	15	
b. rubble & cobble	10	15	20	54	50	40	40	50	
c. coarse gravel	10	5	4	15	15	20	15	15	
d. fine gravel and sand			1	11	15	15	30	20	
e. silt-clay deposits									

7. Comments

Section 1: Left bank composed mostly of shale. In many places the bank is undercut with soil and roots at the water level.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-16 Date 8/8/84

1. Reach	1	1	1	2	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2.5	3.5	4.0	4.0	3.5	3.5	2.0	3.0	4.0
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width a. channel	8.2	6.4	3.7	3.6	2.7	2.8	3.4	4.8	3
b. water	4.6	3.6	3.7	3.2	2.6	2.8	3.4	4.8	3
c. special character	-	-	-	-	-	-	3	-	-
7. Water Type % SS	10	10	10	15	20	15	30	30	30
SF	90	80	90	85	80	75	30	30	50
DS						10	40	40	20
DF		10							
8. Undercut Banks (m) left	0	0	15	50	60	50	30	60	40
right	0	0	15	50	60	50	70	60	40
9. Debris Cover % small	0	0	0	0	0	0	2	5	2
large	.5	.5	1	1	2	2	10	15	10
10. Riparian Vegetation %	5	5	10	15	15	20	20	20	20
11. Substrate %:									
a. boulders	20	30	35	10	20	25	15	15	15
b. cobble	10	15	20	54	50	40	40	50	65
c. gravel	10	5	5	25	25	30	30	25	15
d. sand				1	5	5	15	10	5
e. organic muck									
f. bedrock	60	50	40						
g. other									
12. ASA	10	1	1	1	1	15	15	20	5
13. Gravel Shape	1	1	1	2	2	2	1	1,2	1
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	C	C	C	C	C	C	C	C	C
15. Average Depth (cm)	13	10	10	12	17	17	6	55	11
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	6	-	-	-	-	-	-	6
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1	1	1
b. density	3	1	1	1	3	1	2	2	2
19. Sampling	-	-	-	-	Y	-	-	-	-
20. Rearing Area	10	10	10	15	20	25	70	70	50

21. Comments

Section 1: Very poor ASA - flat compact gravel overlying bedrock. Bedrock is soft, weathered, schistose type. Broken shale along right bank.
 Section 2: Left bank steep. Small tributary from right bank near end of Section. 70% Gradient with no ASA, but some rearing habitat available. Small moss-covered bedrock stairstep falls at end of Section. No barrier at present flow, but potential barrier at low flow.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: Substrate almost 100% moss-covered - very poor ASA. Stream begins to meander. Rearing area lacks good cover.

Section 4: Stream narrows. The substrate is small, but a heavy moss growth is present. The lower banks are undercut with exposed soil present in places, but a good root system provides what appears to be a mostly stable bank.

Section 6: Some deep pools with cover. Two other were seen.

Section 7: Short high water channel to left. Good rearing area - deep pools with cover. More slow areas- braided. The last 30 m. has severely undercut banks with several blowdown trees as a result.

Section 8: The ASA continues to be poor quality due to the moderate moss growth. Good rearing, excellent cover available.

Section 9: Substrate size increases. Stream goes under bank - potential barrier at present or lower flows. Very few outcroppings of shale along the lower bank. Mostly soil-root complex.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-16 Date 8/8/84

1. Reach	2	2	2	3	3	3	3		
2. Section	10	11	12	13	14	15	16		
3. Section Length (m)	100	100	100	100	100	100	100		
4. Gradient	5.5	5.0	5.0	4.5	5.0	8.0	5		
5. Water Quality	4	4	4	4	4	4	4		
6. Water Width a. channel	3.1	3.1	2	2.3	3.5	1.9	1.5		
b. water	3.1	2.9	2	2.3	3.1	.5	1		
c. special character	-	-	-	-	-	-	-		
7. Water Type % SS	10	10	10	10	10	15	15		
SF	90	85	85	75	85	75	75		
DS		5	5	15	5	10	10		
DF									
8. Undercut Banks (m) left	15	20	50	50	60	60	60		
right	15	20	50	50	60	60	60		
9. Debris Cover % small	1	2	1	1	1	1	2		
large	8	7	5	4	1	3	6		
10. Riparian Vegetation %	15	30	30	50	75	75	75		
11. Substrate %:									
a. boulders	15	30	30	20	35	30	25		
b. cobble	70	65	60	70	60	45	75		
c. gravel	14	5	5	10	5	15			
d. sand						5			
e. organic muck									
f. bedrock			5			5			
g. other									
12. ASA	5	5	5	5	5	10	1		
13. Gravel Shape	1	1,2	1,2	2	1	2	2		
14. Streambank Vegetation									
a. percentage	50/50	100	100	100	50/50	50/50	100		
b. type	C/B	C	C	C	B/C	B/C	C		
15. Average Depth (cm)	15	8	8	15	25	7	10		
16. Beaver Activity	5	5	5	5	5	5	5		
17. Potential Barrier	-	-	-	-	-	-	-		
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1		
b. density	1	1	1	2	2	2	1		
19. Sampling	-	-	Y	-	-	-	Y		
20. Rearing Area	10	15	10	25	15	25	25		
21. Comments									

Section 11: Small tributary (.015m³/sec) from left bank. Substrate gravel with fines present for about 25 m. Not much if any, rearing or ASA available. Gradient is 7% with many potential barriers as tributary goes under roots and bank. Muskeg feeder from right bank at end of Section. The upper banks flatten out.

BASELINE (LEVEL TWO) AQUATIC FORM, continued

Section 12: Decrease in rearing habitat quality. Substrate size increases and is more compact.

Section 13: A $.03 \text{ m}^3/\text{sec}$ tributary enters from the left bank near start of Section. No ASA or rearing available. 9% gradient.

Section 14: Small tributary from left bank at end of Section. Muskeg comes very close to the right bank at the beginning of the Section.

Section 15: Extensive meandering. Gradient 15% the first 25 m. then 5%.

Section 16: Survey discontinued as stream continues to branch off. The main fork is only a couple feet across. Little ASA or rearing habitat is available. The substrate is mainly compact large moss-covered cobble. Above the end of the survey the gradient increased to 10 to 15% and large boulders and bedrock become more common.

FISH SAMPLING FORM

ADF&G No. 107-10-16 Date 8/8/84 Stream Name _____

Survey Area A H₂O Temp. 13°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0850	1145	SS 60 DV 50 50 mm	Section 5
2	1005	1020	SS 80 mm	Section 12
3	1105	1120	Ø	Section 16

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-34 2. Historical Fish PS,SS,CS

Part II.

1. Stream Name _____ 2. ADF&G Catalogue No. 107-10-18

3. USGS Map No. Craig D-1 4. Legal Location R87E,T70S,S-10

5. Latitude and Longitude 55°49'30", 132°3'1" 6. Agency Unit 05

7. Aerial Photo No. 0027,1273,24,9-12-73-02190 8. Mgmt. Area K29-720

9. Estimated Flow .36 m³/sec 10. Flow Stage 3

11. Land Use a. present none observed b. historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 12.5°C

15. pH 4.5 16. Intertidal Zone _____ a. Gradient 2.5

b. Bottom type 1. fines 1 2. gravel/small cobble 74

3. large cobble/boulders/bedrock 25

c. ASA good

d. Schooling in bay only

e. Shellfish potential only a few clams and cockles were observed

f. Anchorage good at mouth for small skiff - small tidal flat.

17. Comments

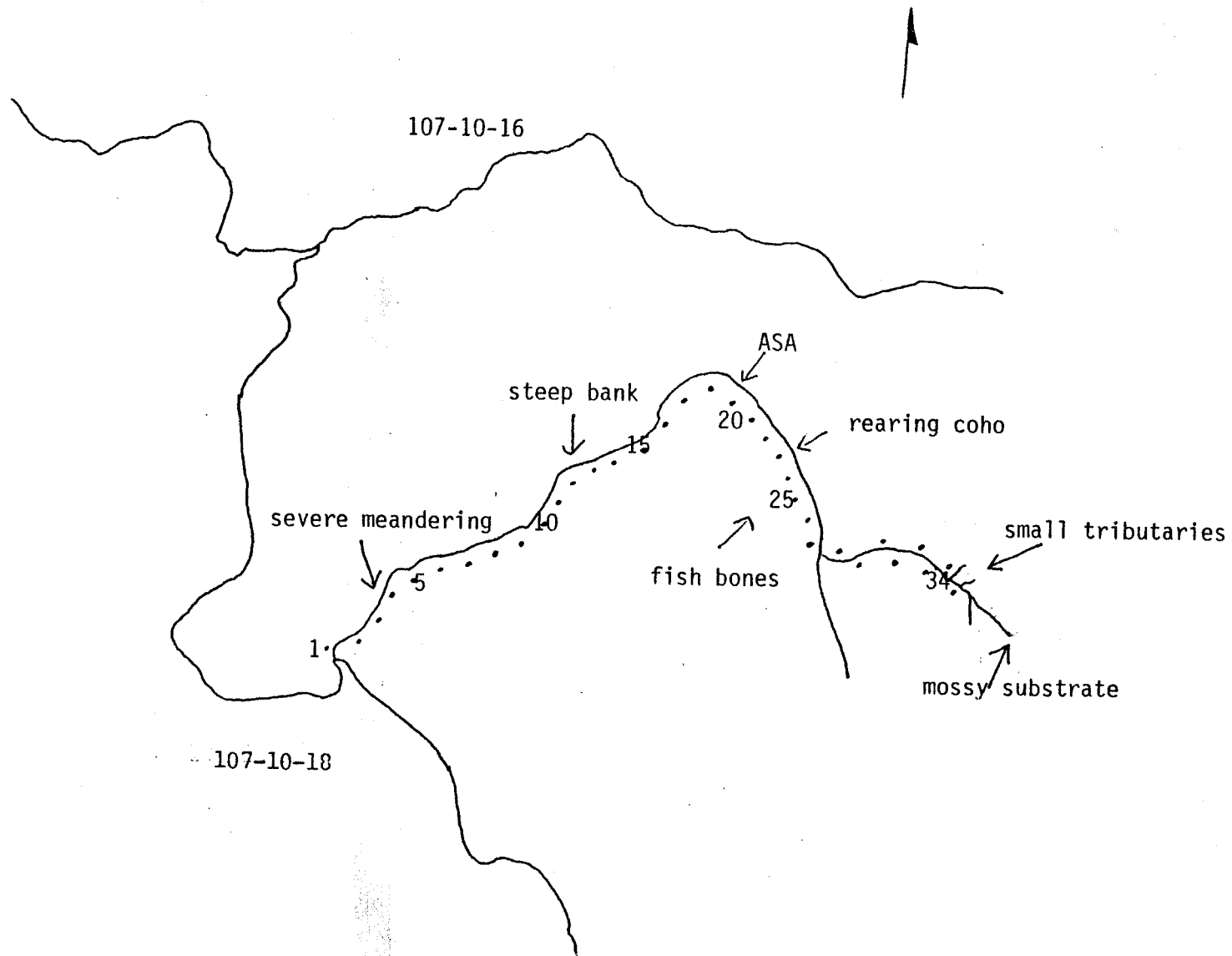
The upper ITZ contains an 80 m. by 6.5 m. stretch with 50% ASA. 107-10-18 contains fair to poor quality ASA and rearing habitat. The substrate is predominately large cobble/boulder/bedrock through Section 18. The spawning substrate may not be too deep in Reach 1 because of the underlying bedrock. The ASA throughout the survey is of questionable quality due to the presence of a moderately dense moss growth on the substrate. The substrate quality improves slightly in Section 19 with a decrease in the gravel size. The substrate soon becomes more compact and silt was observed when the substrate was disturbed in Section 23. The stream begins branching off into small tributaries in Section 31. The gradient increases and patches of bedrock are present in the substrate.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 8/7/84 21. Time 0615-1430

BASELINE AQUATIC SURVEY, continued

The rearing habitat is poor through Section 18 due to the uniform swift nature of the stream and a lack of debris. An increase in amount of undercut banks, slow water, and pool area provide better rearing habitat on the second reach. The most rearing coho were observed in Sections 22 through 27. Rearing fish were difficult to observed due to the dark color of the water, but were present throughout the survey area.



107-10-18



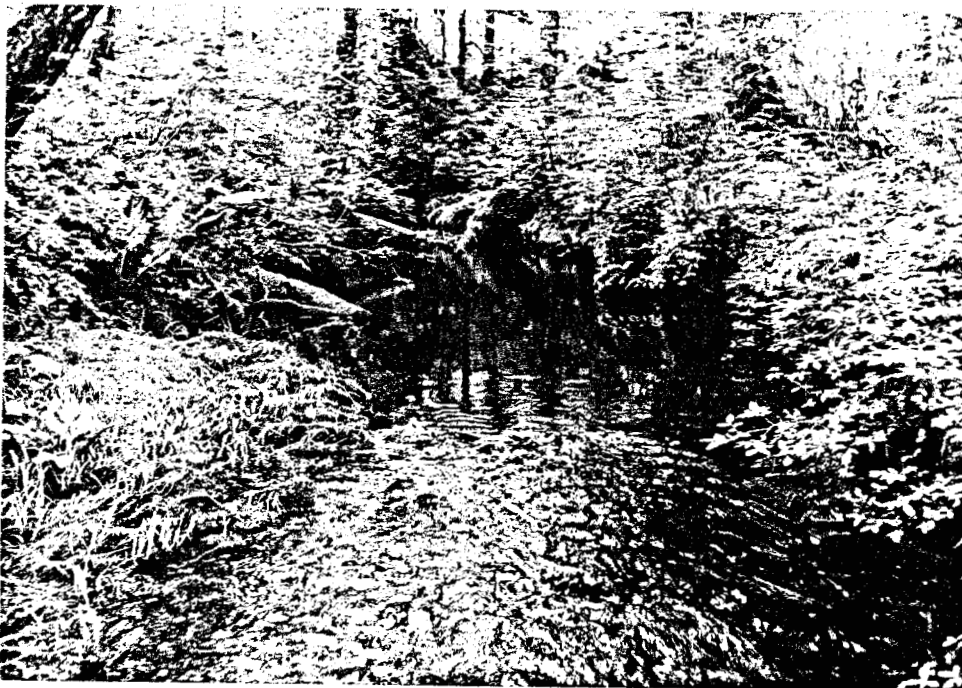
1. ITZ: An 80 m. stretch of possible ASA is present.



2. Little ASA or rearing area is provided.



3. Typical poor habitat in Section 8.



4. Section 27: Improved rearing habitat and ASA are found in Reach 2.

107-10-18



5. Typical habitat at the end of the survey - Section 34.

107-10-18

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	6.5	15	97.5					
2	100	5.5	25	137.5					
3	100	5.2	5	26					
4	100	3.4	1	3.4					
5	100	6.6	1	6.6					
6	100	5	5	25					
7	100	2.3	8	18.4					
8	100	2	5	10					
9	100	2.5	5	12.5					
10	100	2.9	8	23.2					
11	100	2.5	10	25					
12	100	2.3	5	11.5					
13	100	4.3	8	34.4					
14	100	2.2	1	2.2					
15	100	3.3	8	26.4					
16	100	2.9	1	2.9					
17	100	3.4	5	17					
18	100	2.4	10	24					
19	100	3.4	20	68					
20	100	2.1	15	31.5					
21	100	3.4	5	17					
22	100	3.8	5	19					
23	100	2.7	5	13.5					
24	100	3.5	1	3.5					
25	100	3.2	5	16					
26	100	2.9	10	29					
27	100	2.5	20	50					
28	100	2.6	15	39					
29	100	3.2	5	16					
30	100	3.6	1	3.6					
31	100	2.8	5	4					
32	100	3.6	1	3.6					
33	100	2.5	10	25					
34	100	4.6	1	4.6					

Total ASA

856.8m²

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-18

1. Section Number	1	2	3	4	5	6	7	8
2. Channel Type								
3. Riparian Vegetation Class	C4	C4,5	C4,5	C4,5	C4,5	C4,5	C4,5	C4,5
4. Incision Depth (m)	.3	1	.5	1.5	1	1	1.5	1
5. Lower Bank Composition								
a. bedrock or boulder	50	100	100	100	100	100	100	100
b. rubble	10							
c. cobble	10							
d. decomposed organic material								
e. gravel	10							
f. sand & silt	20							
6. Bed substrate composition								
a. bedrock or boulder	20	45	49	93	70	60	70	80
b. rubble & cobble	69	49	40	5	20	30	25	15
c. coarse gravel	10	5	10	2	8	10	5	5
d. fine gravel and sand	1	1	1		2			
e. silt-clay deposits								

7. Comments

1-8 Bedrock along lower bank was actually a schistose type rock. Other cobble and gravel, etc. was also of schistose origin.

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-18

1. Section Number	9	10	11	12	13	14	15	16	
2. Channel Type									
3. Riparian Vegetation Class	C4,5	C4,5	C4,5	C4,5	C4,5	C4,5	C4	C4	
4. Incision Depth (m)	1	.7	.5	.5	.5	.5	.3	.7	
5. Lower Bank Composition									
a. bedrock or boulder	100	100	100	100	100	100	100	100	
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	50	35	25	40	50	75	75	70	
b. rubble & cobble	40	55	60	55	50	20	20	30	
c. coarse gravel	10	10	10	5		5	5	T	
d. fine gravel and sand		T	5	T	T				
e. silt-clay deposits									

7. Comments
Section 9: Incision on left bank is 3.5 meters.

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-18

1. Section Number	17	18	19	20	21	22	23	24
2. Channel Type								
3. Riparian Vegetation Class	C4	C4	C4	C4	C4	C4,5	C5,4	C5,4
4. Incision Depth (m)	1	.7	.5	1	.7	1	.5	.3
5. Lower Bank Composition								
a. bedrock or boulder	100	100	10	10	-	5	5	5
b. rubble			10	10	15	15	15	15
c. cobble			40	40	50	50	50	50
d. decomposed organic material								
e. gravel			10	10	10	10	15	15
f. sand & silt			30	30	25	20	15	15
6. Bed substrate composition								
a. bedrock or boulder	70	60	40	30	50	45	30	25
b. rubble & cobble	25	30	30	40	40	35	50	55
c. coarse gravel	5	10	25	25	10	10	10	10
d. fine gravel and sand	T	T	5	5			10	10
e. silt-clay deposits								

7. Comments

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-18

1. Section Number	25	26	27	28	29	30	31	32
2. Channel Type								
3. Riparian Vegetation Class	C5,4	C4,5	C4	C4	C4	C4	C4	C4
4. Incision Depth (m)	1	.7	.7	1	.7	1	.7	1
5. Lower Bank Composition								
a. bedrock or boulder	10	10	10	10	15	15	40	100
b. rubble	25	35	30	25	35	35	20	
c. cobble	35	35	35	35	30	30	25	
d. decomposed organic material								
e. gravel	15	10	10	10	10	10		
f. sand & silt	15	10	15	20	10	10		
6. Bed substrate composition								
a. bedrock or boulder	25	10	10	10	30	35	50	70
b. rubble & cobble	60	50	60	60	55	55	40	25
c. coarse gravel	10	40	20	20	10	10	5	5
d. fine gravel and sand	5		10	10	5		5	
e. silt-clay deposits								

7. Comments

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name _____ ADF&G No. 107-10-18

1. Section Number	33	34							
2. Channel Type									
3. Riparian Vegetation Class	C4	C4							
4. Incision Depth (m)	.7	.5							
5. Lower Bank Composition									
a. bedrock or boulder	100	100							
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	30	45							
b. rubble & cobble	60	55							
c. coarse gravel	10	T							
d. fine gravel and sand									
e. silt-clay deposits									

7. Comments

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-18 Date 8/7/84

1. Reach	1	1	1	1	1	1	1	1	1
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	4	4.5	4	4	4	5	4.5	4.5
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width									
a. channel	7.8	5.5	5.2	3.4	6.7	5.5	3.8	4.8	4.6
b. water	6.5	5.5	5.2	3.4	6.6	5.0	2.3	2	2.5
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type %									
SS	10	10	5	5	5	5	10	10	10
SF	75	90	80	80	80	75	80	90	80
DS	10		10	10	10	10	-	-	5
DF	5		5	5	5	10	10	-	5
8. Undercut Banks (m)									
left	0	20	10	15	10	15	20	10	10
right	0	15	0	15	10	15	20	10	10
9. Debris Cover %									
small	0	0	0	1	1	2	0	0	0
large	5	2	1	3	2	3	2	1	1
10. Riparian Vegetation %	1	20	15	25	25	20	10	10	20
11. Substrate %:									
a. boulders	10	20	20	1	35	35	40	30	25
b. cobble	70	50	40	5	20	30	25	15	40
c. gravel	10	5	10	2	8	10	5	5	10
d. sand					1				
e. organic muck									
f. bedrock	10	25	30	92	35	25	30	50	25
g. other									
12. ASA	15	25	5	1	1	5	8	5	5
13. Gravel Shape	1	1	1	1	1	1	1	1	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	C	C	C	C	C	C	C	C	C
15. Average Depth (cm)	20	10	13	30	10	30	8	13	10
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1	1	1
b. density	3	2	2	1	2	2	2	2	2
19. Sampling	-	-	Y	-	-	-	-	-	-
20. Rearing Area	20	10	10	10	10	10	10	10	10
21. Comments									

Section 1: The ASA substrate is mainly large cobble and is not very deep in places due to presence of underlying bedrock. The water is very dark in color. A cut left bank with exposed sand and gravel is present 25 m. into the Section.

Section 2: The substrate size is increasing and the moss growth is more dense. Good stable banks that provided good containment are present. The lower banks mostly shale.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: A small stairstep falls that is not a barrier is present.

Section 4: The stream begins meandering

Section 5: Two small trickles enter from the right bank. Two small trickles also enter from the left bank. The ASA is composed of a thin layer of cobble and gravel over bedrock.

Section 7: Two trickles enter from the right bank. The undercut banks contain shallow fast water and do not provide much rearing habitat.

Section 8: Trickle seep from left bank.

Section 9: Gravel shape is becoming oblong to rounded. Broken shale on steep left bank the first 20 m. Steep right bank composed of broken shale/fractured bedrock last 50 m.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-18 Date 8/7/84

1. Reach	1	1	1	1	1	1	1	1	1
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3.5	4.0	3.5	4.0	4.0	4.5	5.0	4.0	3.5
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width a. channel	3.8	2.5	2.3	5.6	3.7	3.3	2.9	4	3.2
b. water	2.9	2.5	2.3	4.3	2.2	3.3	2.9	3.4	2.4
c. special character	-	-	1	-	-	-	-	-	-
7. Water Type % SS	10	10	10	10	10	10	10	10	15
SF	75	70	70	75	70	70	75	80	70
DS	10	10	10	5	10	10	5	5	15
DF	5	10	10	10	10	10	10	5	-
8. Undercut Banks (m) left	10	10	15	15	10	20	10	20	20
right	10	15	15	10	10	20	10	10	20
9. Debris Cover % small	2	1	1	0	0	0	0	0	0
large	5	4	2	1	1	2	1	1	2
10. Riparian Vegetation %	15	20	15	15	15	15	15	15	15
11. Substrate %:									
a. boulders	25	25	35	40	60	35	59	60	25
b. cobble	54	60	55	50	20	20	30	25	30
c. gravel	10	15	5		5	5	1	5	10
d. sand	1								
e. organic muck									
f. bedrock	10		5	10	15	40	10	10	35
g. other									
12. ASA	8	10	5	8	1	8	1	5	10
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	C	C	C	C	C	C	C	C	C
15. Average Depth (cm)	10	20	8	11	25	8	17	10	9
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1	1	1
b. density	2	2	2	2	2	2	2	2	2
19. Sampling	-	Y	-	-	-	-	-	-	-
20. Rearing Area	15	15	15	15	15	15	10	10	20
21. Comments									

Section 11: Rearing coho was observed. The amount of bedrock is decreasing, but ASA substrate is still predominately large cobble. A deep pool with debris cover at the beginning of the Section provides good rearing habitat.

Section 12: Braiding is present at the start of the Section.

Section 13: The right bank is mostly steep bedrock for 40 m.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 14: The steep right bank is composed of fractured shale and bedrock for 30m. Unstable with a little blowdown.

Section 16: The substrate size increases in size and the ASA decreases in quality. Muskeg is very close to the upper right bank.

Section 18: A few rearing fish were seen. The rearing area still looks cover. The undercut banks are not icy deep and there is a lack of debris.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-18 Date 8/7/84

1. Reach	2	2	2	2	2	2	2	2	2
2. Section	19	20	21	22	23	24	25	26	27
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3.0	3.0	3.5	4.0	3.0	2.5	2.5	2.0	2.0
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width a. channel	4.4	2.5	3.4	3.8	2.7	3.5	3.2	2.9	3.1
b. water	3.4	2.1	3.4	3.8	2.7	3.5	3.2	2.9	2.5
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	20	30	30	30	30	30	35	40	40
SF	65	45	40	55	50	40	45	50	40
DS	15	25	25	15	20	30	20	10	20
DF			5						
8. Undercut Banks (m) left	40	60	60	50	50	50	50	60	85
right	25	60	50	50	50	50	50	60	60
9. Debris Cover % small	1	1	1	0	1	2	1	1	1
large	4	5	3	2	8	8	6	3	1
10. Riparian Vegetation %	20	20	20	20	20	15	20	20	25
11. Substrate %:									
a. boulders	25	30	49	45	30	25	25	10	10
b. cobble	30	40	40	45	50	54	60	50	60
c. gravel	29	29	10	10	15	20	15	40	30
d. sand	1	1	1		5	1			
e. organic muck									
f. bedrock	15								
g. other									
12. ASA	20	15	5	5	5	1	5	10	20
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	C	C	C	C	C	C	C	C	C
15. Average Depth (cm)	30	25	6	27	35	10	17	25	7
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1	1	1
b. density	2	2	2	2	2	2	2	2	2
19. Sampling	-	Y	-	-	-	-	-	-	Y
20. Rearing Area	30	50	50	45	50	60	50	50	60
21. Comments									

Section 19: Some good quality ASA is present. The substrate size decreases to small cobble and gravel. More rearing area is available, although it still lacks good cover. The upper left bank is very flat. More cut banks with less bedrock are present along the lower bank.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 20: Exposed soil and roots compose most of the lower banks although a mixture of rounded cobble and sand is also present in places. The deeply undercut banks provide better rearing habitat.

Section 21: The ASA is becoming more compact and the cobble size has increased. A small seep enters from the left bank. The undercut banks have exposed soil and roots present, but appear to be stable.

Section 22: Coho fry were observed with regularity.

Section 23: The ASA substrate is compact with a moderate to heavy moss growth. Fines are present if the substrate is disturbed. Good debris cover over deep pools provides good rearing habitat.

Section 24: Fish bones were found on the bank. Fontinalis present.

Section 25: A few rearing fish were observed.

Section 26: A small tributary from a muskeg area on the right bank enters and provides little, if any, ASA or rearing habitat.

Section 27: Fair numbers of rearing coho were observed in this Section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-18 Date 8/7/84

1. Reach	2	2	2	3	3	3	3		
2. Section	28	29	30	31	32	33	34		
3. Section Length (m)	100	100	100	100	100	100	100		
4. Gradient	1.5	2.0	2.0	2.5	3.5	3.5	4.0		
5. Water Quality	4	4	4	4	4	4	4		
6. Water Width a. channel	2.7	3.2	3.6	2.9	3.6	2.5	4.6		
b. water	2.6	3.2	3.6	2.8	3.6	2.5	4.6		
c. special character	-	-	-	-	-	-	-		
7. Water Type % SS	40	35	30	30	25	30	25		
SF	35	40	40	40	60	60	65		
DS	25	25	30	30	15	10	10		
DF									
8. Undercut Banks (m) left	50	60	60	60	20	25	10		
right	80	60	60	60	20	25	10		
9. Debris Cover % small	1	1	3	3	3	2	3		
large	2	3	8	8	9	6	8		
10. Riparian Vegetation %	25	30	25	25	25	25	50		
11. Substrate %:									
a. boulders	10	30	25	40	30	30	40		
b. cobble	60	55	55	40	25	60	54		
c. gravel	30	15	10	10	5	10	1		
d. sand									
e. organic muck									
f. bedrock			10	10	40		5		
g. other									
12. ASA	15	5	1	5	1	10	1		
13. Gravel Shape	2	2	2	1	1	1	1		
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100		
b. type	C	C	C	C	C	C	C		
15. Average Depth (cm)	22	30	30	20	8	13	10		
16. Beaver Activity	5	5	5	5	5	5	5		
17. Potential Barrier	-	-	-	-	-	-	-		
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1		
b. density	2	2	2	2	2	2	2		
19. Sampling	-	-	-	-	-	-	-		
20. Rearing Area	65	60	60	60	40	40	35		
21. Comments									

Section 29: The stream begins to meander quite severely.

Section 30: Three small trickle tributaries enter from the left bank and provide no ASA or rearing area.

Section 31: The gradient begins to increase and patches of bedrock are observed in the stream.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 33: A $.015 \text{ m}^3/\text{sec}$ tributary enters from the left bank at the start of the Section. Little rearing habitat and no ASA is present. A $.03 \text{ m}^3/\text{sec}$ tributary enters from the left bank 60 m. into the Section. Skunk cabbage is growing in the stream. A small amount of rearing habitat, but little, if any ASA is provided.

Section 34: A $.015 \text{ m}^3/\text{sec}$ tributary enters from the right bank at the start of the Section. The survey is discontinued at the end of the Section. There are still patches of ASA and good rearing habitat available. Rearing coho were still occasionally observed. A reconnaissance above here found the substrate to be predominately large mossy covered cobble and boulders. The presence of bedrock in the banks and substrate increases. The gradient is 4 to 5%.

FISH SAMPLING FORM

ADF&G No. 107-10-18 Date 8/7/84 Stream Name _____
 Survey Area A H₂O Temp. 12.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0710	1400	SS 80mm 40	Section 3
2	0830	1345	SS 80 70 60 DV 120mm	Section 11
3	1000	1015	SS 70 90 70 75 mm	Section 20
4	1130	1200	SS 70 mm 70 75 90 45 DV 70	Section 27

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-3 2. Historical Fish

Part II.

1. Stream Name Vixen Inlet #3 3. ADF&G Catalogue No.

3. USGS Map No. Craig D-1 4. Legal Location R87E.T70S.S-14

5. Latitude and Longitude 55°48'05" 132°01' 10" 6. Agency Unit 05

7. Aerial Photo No. 0028,1273,223,9-12-73 , 02190 8. Mgmt Area K29-720

9. Estimated Flow .04 m³/sec 10. Flow Stage 2

11. Land Use a. present none observed b. historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 13°C

15. pH 6.5 16. Intertidal Zone a. Gradient 5

b. Bottom type 1. fines T 2. gravel/small cobble 5

3. large cobble/boulders/bedrock 5

c. ASA poor - boulders and bedrock

d. Schooling only in bay

e. Shellfish potential a few cockles and clams observed

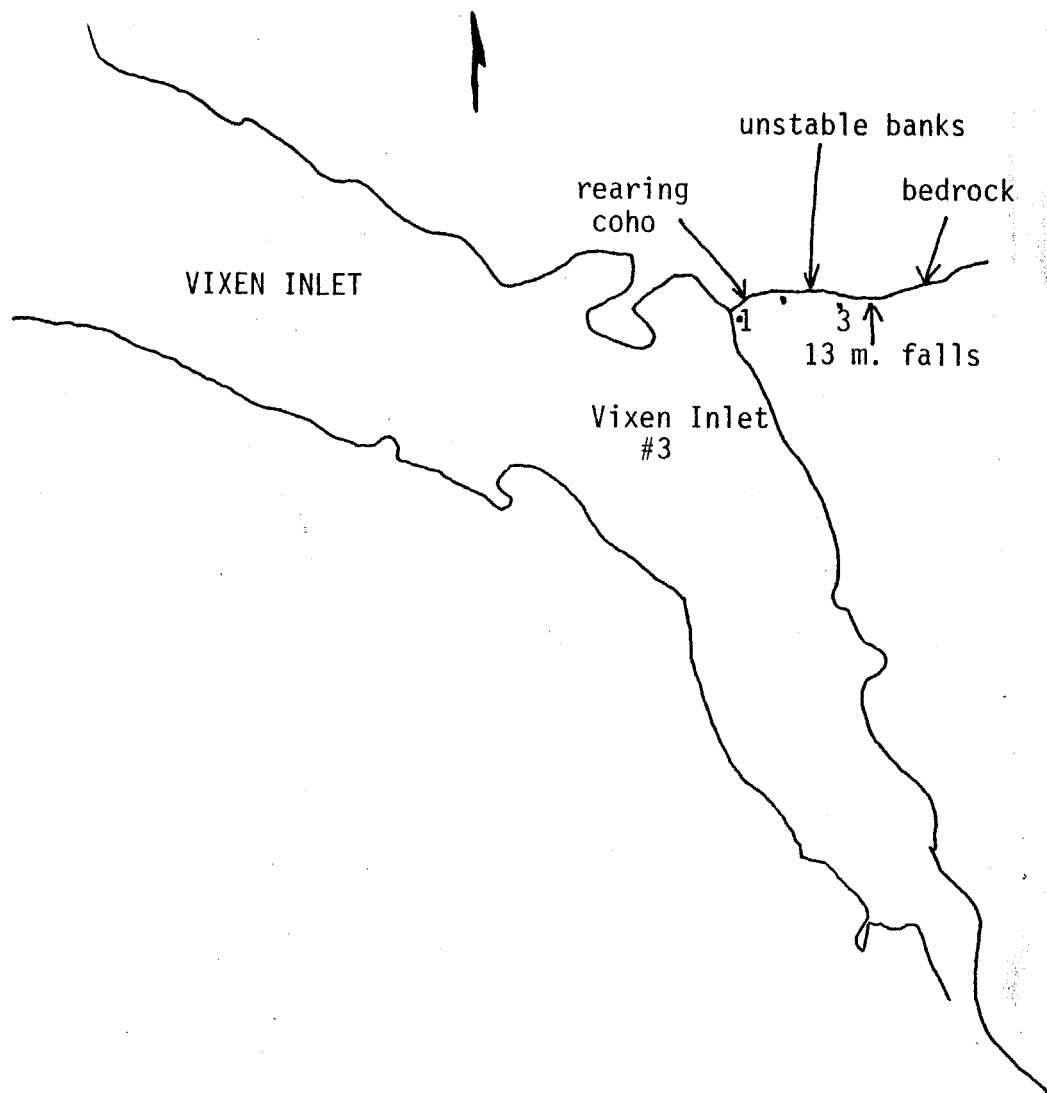
f. Anchorage good near mouth

17. Comments

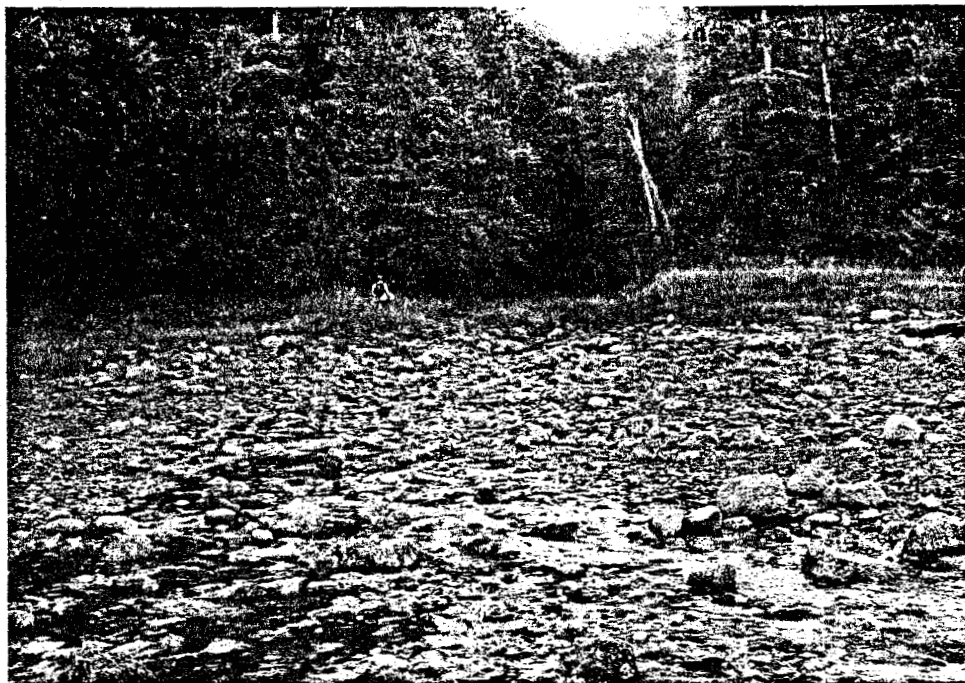
Vixen Inlet #3 has little ASA. It is found only in small pockets between the predominant boulders and bedrock. There is fair rearing habitat available with pools and debris present, but few rearing fish were observed or trapped. A rearing coho was captured in a minnow trap. Two 13 m. barrier falls are present within 80 m. of the end of Section 3.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 8/5/84 21. Time 1445-1630



Vixen Inlet #3



1. ITZ



2. Habitat in Section 2 before the substrate turns to bedrock.

Vixen Inlet #3



3. Bedrock barrier in Section 3.

Vixen Inlet #3

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	3.7	1	3.7					
2	100	2.0	1	2.0					
3	100	4.1	0	0					
Total ASA				5.7m ²					

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Vixen Inlet #3 ADF&G No. _____

1. Section Number	1	2	3						
2. Channel Type									
3. Riparian Vegetation Class	C5	C5	C5						
4. Incision Depth (m)	.3	.3	1						
5. Lower Bank Composition									
a. bedrock or boulder	100	100	100						
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	75	90	75						
b. rubble & cobble	20	8	20						
c. coarse gravel	5	2	5						
d. fine gravel and sand									
e. silt-clay deposits									

7. Comments

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Vixen Inlet #3 ADF&G No. _____ Date 8/5/84

1. Reach	1	1	1						
2. Section	1	2	3						
3. Section Length (m)	100	100	80						
4. Gradient	6	12	13						
5. Water Quality	3	3	3						
6. Water Width a. channel	4.4	3.1	6						
b. water	3.7	2	4.1						
c. special character	-	-	-						
7. Water Type % SS	50	30	30						
SF	50	65	60						
DS		5	10						
DF									
8. Undercut Banks (m) left	0	0	0						
right	0	0	0						
9. Debris Cover % small	1	5	3						
large	3	15	15						
10. Riparian Vegetation %	20	30	25						
11. Substrate %:									
a. boulders	60	20	40						
b. cobble	20	8	20						
c. gravel	5	2	5						
d. sand									
e. organic muck									
f. bedrock	15	70	35						
g. other									
12. ASA	1	1	0						
13. Gravel Shape	1	1	1						
14. Streambank Vegetation									
a. percentage	100	100	100						
b. type	B	B	B						
15. Average Depth (cm)	7	15	10						
16. Beaver Activity	5	5	5						
17. Potential Barrier	-	3	2						
18. Aquatic Vegetation									
a. type	1	1	1						
b. density	2	2	2						
19. Sampling	Y	Y	-						
20. Rearing Area	50	35	30						

21. Comments

Section 1: ASA found only in small patches.

Section 2: Bedrock becomes dominant substrate. Fontinalis present. Possible debris barrier at present flow at end of Section. Blowdown on upper left bank from SW winds.

Section 3: Both upper banks are unstable, midway through the Section begins a V-notch with exposed shale and soil on the steep right bank. Some rearing available in a few deep pools, with a little cover. A rearing trout, 125 - 150 mm. observed. Series of small bedrock and debris falls at end of Section. 80 m. into Section

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3, continued: survey discontinued. A 13 m. bedrock barrier falls is present. Bedrock on upper banks is a schistose type, with rock fragmenting off in flat pieces.

Immediately above the 13 m. falls there is another 3 m. barrier falls. The stream continues with a bedrock substrate and a 16% gradient for another 80 m. Another 13 m. bedrock barrier falls was then encountered.

FISH SAMPLING FORM

ADF&G No. _____ Date 8/5/84 Stream Name Vixen Inlet #3
 Survey Area A H₂O Temp. 13°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1520	1610	1-SS 100mm	Section 1
2	1535	1605	Ø	Section 2

BASELINE AQUATIC SURVEY

Part I.	A 1-30	E 1-24	
	B 1-14	F 1-16	
	C 1-11	G 1-10	
1. Survey Areas	D 1-16	H 1- 6	2. Historical Fish ST. PS. CS. SS. DV. CT.

Part II.

1. Stream Name Hofstad Lake 2. ADF&G Catalogue No. 107-10-20
3. USGS Map No. Craig D-1,C-1, KTN D-6 4. Legal Location T70.S., R87E, Section 24
5. Latitude and Longitude 132° 00' 10", 55° 46' 50" 6. Agency Unit 05
7. Aerial Photo No. 0028, 1237, 224, 9-12-73, 02190 8. Mgmt. Area K29-718 & 720
9. Estimated Flow Area A - 2 m³/sec. 10. Flow Stage 2
11. Land Use a. present none observed b. historical logging along ITZ
12. Temperature Sensitivity and/or origin 5, 4, 1
13. Access 2 14. Stream Temperature 16.5° C
15. pH 6 16. Intertidal Zone _____ a. Gradient 1
b. Bottom type 1. fines 2 2. gravel/small cobble 90
3. large cobble/boulders/bedrock 8
c. ASA good quality ASA available in the large upper ITZ
d. Schooling schooling areas are present throughout the ITZ
e. Shellfish potential butter clams, Dungeness crab present in Vixen Inlet
f. Anchorage extensive tidal flats

17. Comments (See narrative)

18. Investigators Burns/Cariello 19. Weather 3, 1

20. Date 6/9, 17 & 18/84, 8/24/84, 9/4/84 21. Time 40 hours of survey work

BASELINE AQUATIC SURVEY, continued

107-10-20 is a very large system. The only accessible ASA is in the ITZ, the first 4 Sections of Area A, and in Areas B and C.

Area A is comprised of the main stem from the ITZ to Hofstad Lake. A large barrier falls with a vertical rise of about 30 m. is present 900 m. from the start of the survey. Good numbers of spawning PS were present from the foot of the falls downstream to the ITZ. The first four Sections of Area A are probably influenced by high tides and contain fair quality ASA. The substrate contains a high concentration of fine gravel and sand under the top layer of cobble and gravel and not all of the ASA was being utilized by the PS present.

There is fair quality rearing area provided in the stretch below the barrier falls due to the presence of a large amount of deep pools. There is not much cover provided however.

The bulk of Area A is a bedrock channel that stretches from the barrier falls to the end of Section 30. The stream then comes under the influence of Hofstad Lake and is too deep and dark to survey. The bedrock stretch has small amounts of gravel substrate along the banks, but there is very little ASA. The rearing habitat lacks any type of cover and the rearing area is limited to deep pool areas.

Areas B and C are tributaries to 107-10-20 in the upper ITZ. Area B contains fair amounts of ASA up through Section 14 where a series of bedrock falls were found. The stream forked into two equal branches in Section 5, but the left fork has two barrier falls present within 100 m. of the fork. Rearing coho were abundant in Sections 9 through 11. There were patches of large debris, but most of the rearing area provided was in deep pools. The banks were unstable through most of the upper reach of the survey. The upper banks also appeared to continue to remain unstable during a helicopter reconnaissance of the areas above the barriers.

Area C contains fair amounts of ASA up to Section 7. An exceptional large debris load provides excellent rearing habitat up through Section 9 where the gradient begins to increase. Rearing coho were extremely abundant in Area C. The upper banks get very steep and unstable in Section 8 as the stream enters a V-notch.

A tributary from the right bank in Section 5 contains fair amounts of poor ASA also. Excellent rearing habitat was present in the tributary, but no rearing coho were observed. No reason for the lack of rearing fish in this tributary could be deduced. Spawning PS were observed utilizing the silty ASA in good numbers on 9/3/84.

Area D is a tributary to Hofstad Lake. Area D contained very poor ASA. The substrate is predominately sand and fine gravel with little stream velocity for 500 meters. The substrate abruptly changes to mossy boulders in Section 6 and provides little if any ASA through the remainder of the area surveyed. The rearing area is good quality for the first 5 Sections with a good debris load and much deep pool area. Relatively few rearing trout were observed however. The rearing area above Section 5 contains little debris or undercut banks and is not good quality. Rearing trout were occasionally observed however.

Area E is the main tributary to Hofstad Lake. The stream is predominately DS and SS water type for the first 8 Sections. Patches of riffle do provide some ASA starting in Section 5. Excellent rearing habitat is provided by the heavy debris load and pool areas. The stream velocity increases in Section 9. The substrate size begins to increase also and by the end of Section 21 the substrate is primarily boulders. The best ASA is present in Sections 7 through 19. Adequate rearing is provided up to Section 21. There is little debris or undercut banks or cover of any type beyond here. Stretches of bedrock become common in the substrate and there is little ASA present.

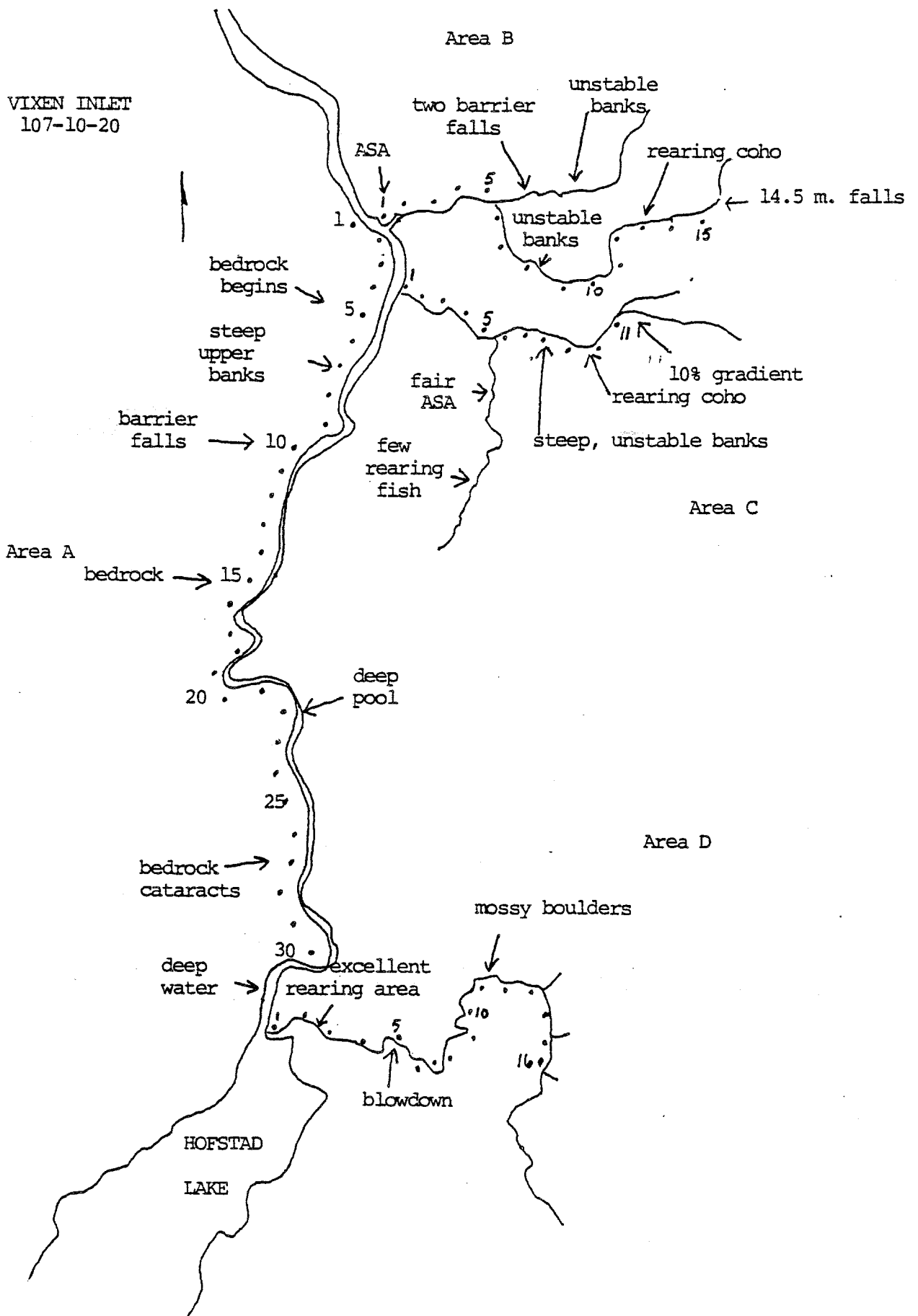
A reconnaissance by helicopter at several sites upstream found no improvement in habitat.

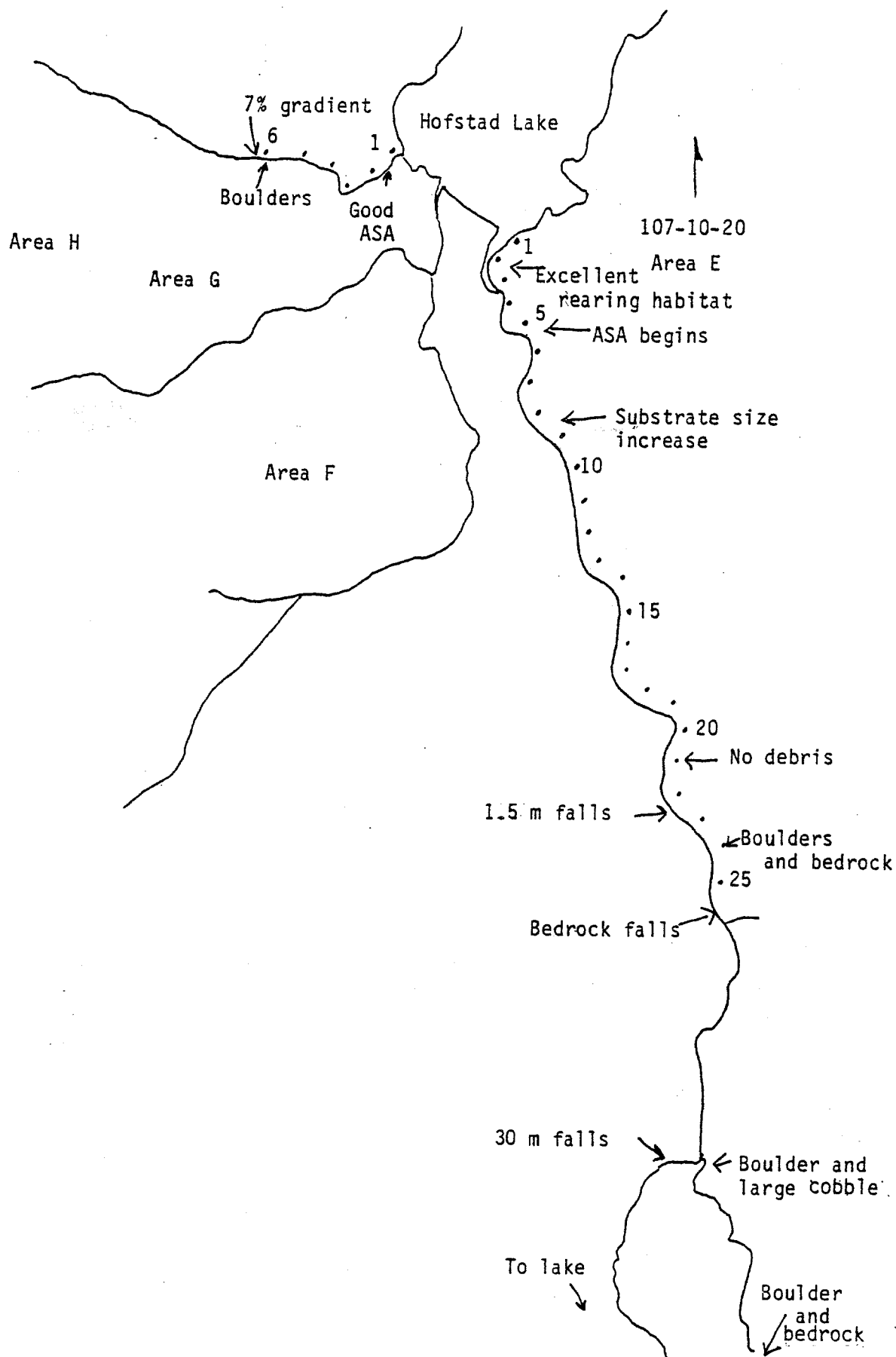
The second tributary to the south shore of Hofstad Lake contained two areas that were surveyed; Areas F and G.

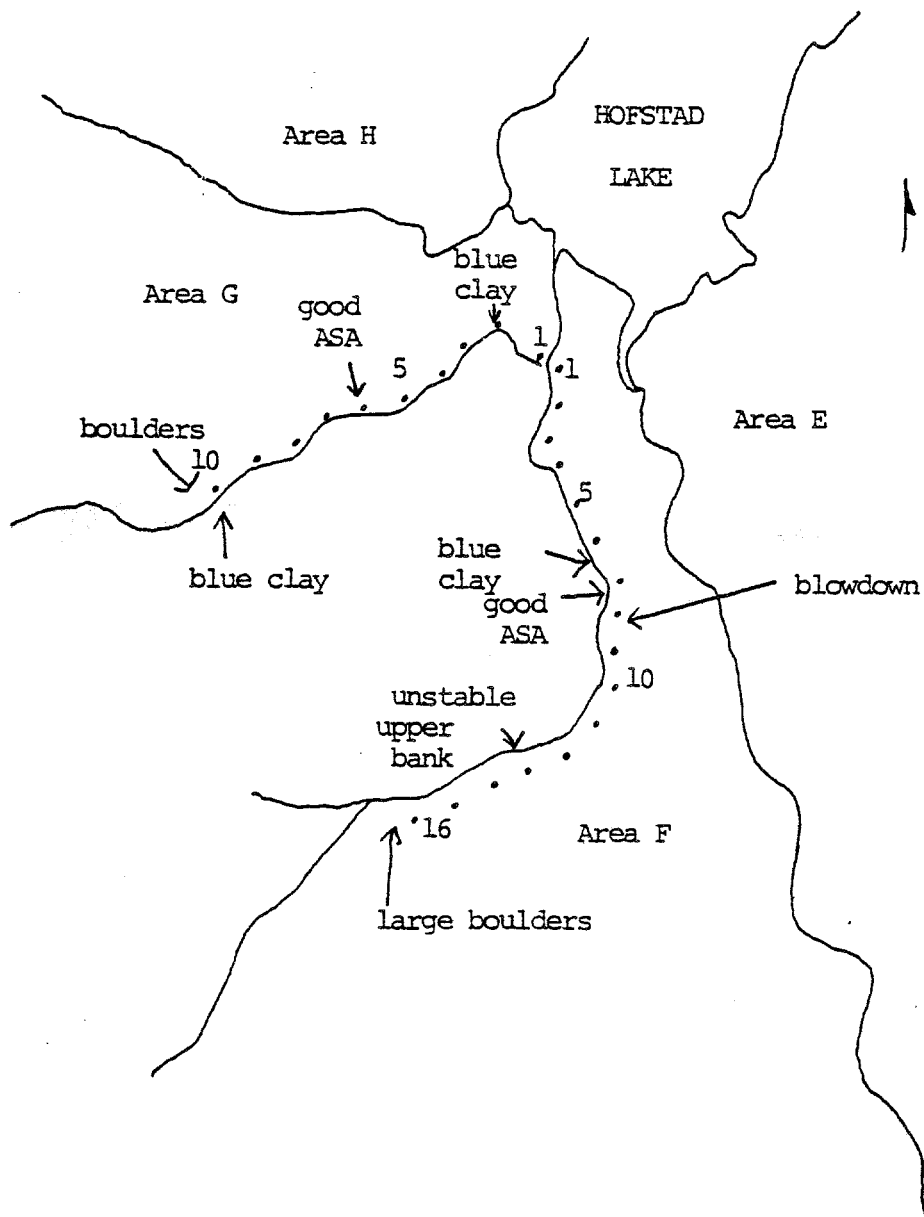
Area F contains little ASA, but good rearing habitat is available for the first 400 m. The substrate for the first reach is primarily sand. The water is deep and slow and a heavy debris load is present. The ASA improves and the rearing habitat remains good quality up to Section 10. The gradient and substrate size begins to increase and the survey was discontinued at the end of Section 16 when the stream substrate was large round boulders.

Area G contains good ASA through Section 6. Excellent rearing area is also provided by the large debris and mix of riffles and pool area present. The gradient and substrate size increase after Section 7. The survey was discontinued after Section 10 due to the lack of ASA and rearing area.

Area H is the third tributary to the south shore of Hofstad Lake. Good clean gravel provides excellent ASA for 300 m. before the substrate size and gradient begin to increase. A heavy debris load provides plenty of cover and pool area for rearing habitat. The survey was discontinued after Section 6. The gradient was 7% and increasing and the fisheries habitat quality was declining rapidly.







107-10-20 Area A



1. Lower ITZ



2. Section 1: The start of the survey is under tidal influence and contains good quality ASA.

107-10-20 Area A



3. Barrier falls in Section 10.



4. Section 25: A possible bedrock barrier due to low water depth in Section 27 is in the background.

107-10-20 Area A



5. Section 30: The water is too deep and dark to survey further. Hofstad Lake is 400 m. upstream.

107-10-20 Area B



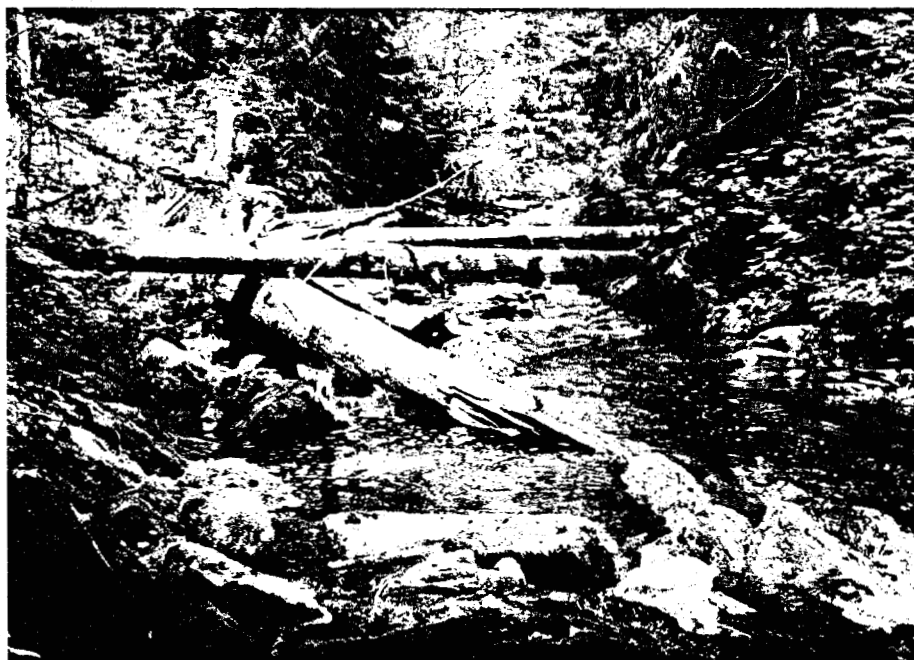
1. Section 3: The rearing areas lacks cover.



2. Second barrier falls on left fork in Section 5.



3. ASA and unstable upper banks in Section 9.



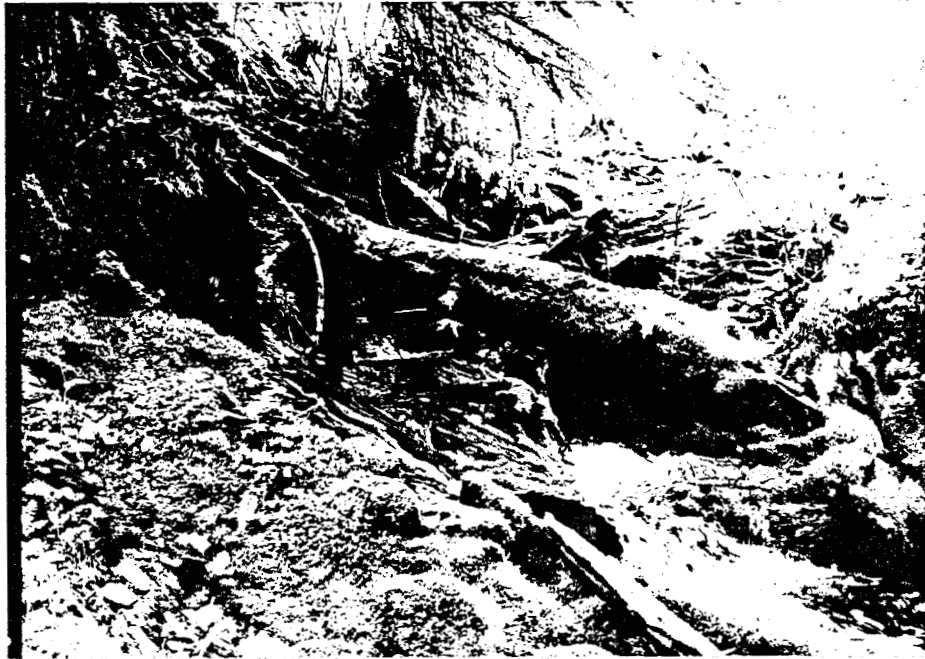
4. Boulder and bedrock substrate above the 14 m. falls.



1. Section 2: The ASA was fair quality due to the flat substrate. A heavy debris load provided excellent rearing habitat.



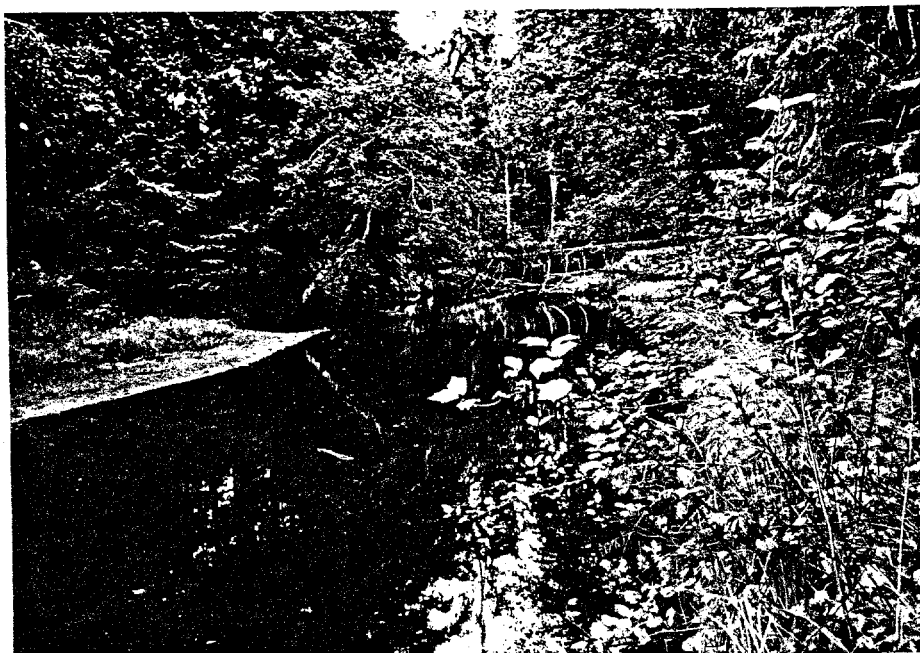
2. Severe blowdown and debris in Section 8.



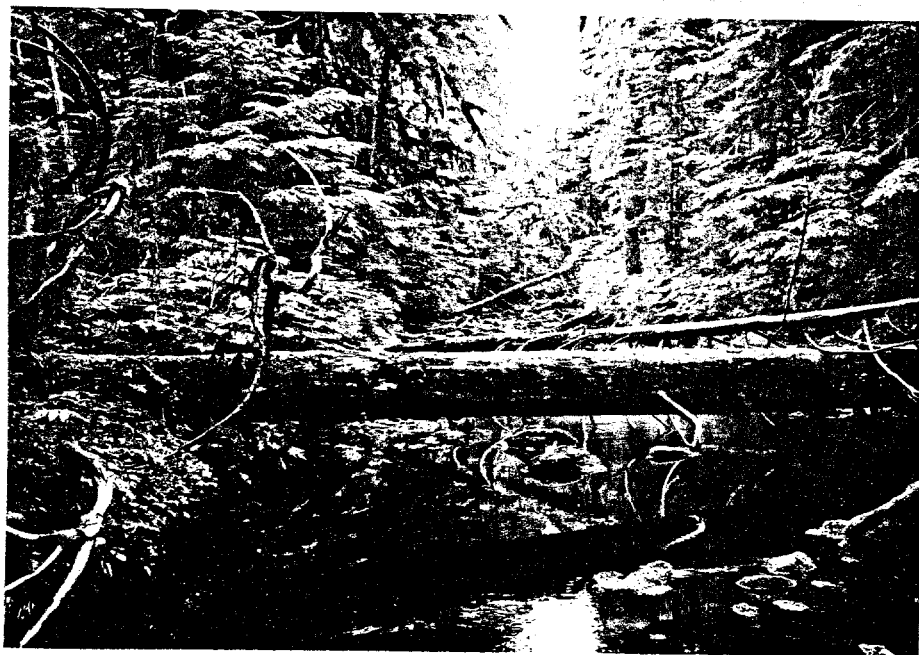
3. Section 11: The habitat declines in quality at the end of the survey.



4. Flat, silty substrate typical of the ASA in the tributary to Section 5.



1. Excellent rearing area in Section 1.



2. Section 6: A dramatic change in habitat takes place and the substrate changes to mossy boulders.

107-10-20 Area D



3. Habitat at the end of the survey and the end of Section 16.

107-10-20
Area E



1. Section 1. Deep, slow pool area for several hundred meters.



2. Good riffle area in Section 10.

107-10-20
Area E



3. Section 25: Swift water with substrate consisting mostly of boulders.



4. Typical habitat on the left fork about 1200 m. upstream from Section 25.

107-10-20
Area F



1. Excellent rearing habitat in Section 4.
ASA begins.



2. The substrate is mainly boulders in Section 10.

107-10-20
Area F



3. Section 16: The substrate is primarily large boulders.

107-10-20
Area G

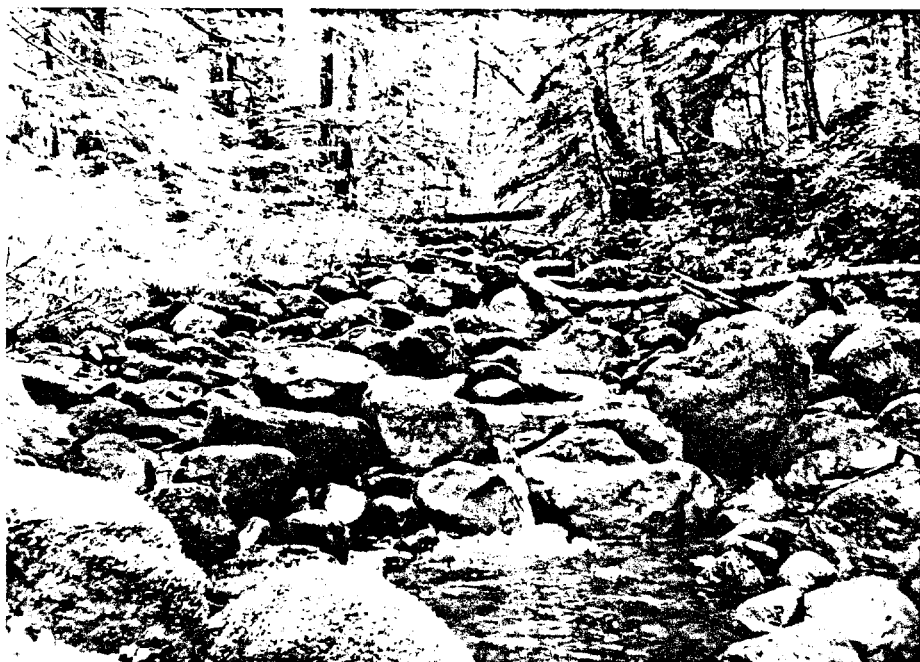


1. Good ASA in Section 6.



2. Section 9: Boulder substrate typical of Reach 2.

107-10-20
Area G



3. 100 m. beyond the end of the survey.

107-10-20
Area H



1. Excellent ASA typical of Sections 1 and 2.



2. The gradient and substrate size increase at the end of Section 6.

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
Area A					Area B				
1	100	19	95	1805	1	100	11	20	220
2	100	24	50	1200	2	100	6.9	20	138
3	100	20	90	1800	3	100	9.4	5	47
4	100	16	50	800	4	100	15	5	75
5	100	30	1	30	5	100	11.1	5	55.5
6	100	26	1	26	6	100	6.1	5	30.5
7	100	17	1	17	7	100	4.8	60	288
8	100	15	1	15	8	100	9.5	1	9.5
9	100	47.5	0	0	9	100	6.6	15	99
10	100	24.5	0	0	10	100	7.4	5	37
11	100	22	0	0	11	100	3.5	1	3.5
12	100	27.2	0	0	12	100	6.2	10	62
13	100	20	0	0	13	100	7.2	5	36
14	100	18	0	0	14	100	9.1	5	45.5
15	100	24	0	0	Total Area B ASA				
16	100	26	0	0	1,146.5 m ²				
17	100	24	0	0	Area C				
18	100	24	0	0	1	100	4.1	60	246
19	100	22	0	0	2	100	3.5	5	17.5
20	100	20	1	20	3	100	7.8	30	234
21	100	17	5	85	4	100	3.9	10	39
22	100	30	1	30	5	100	4	10	40
23	100	22	1	22	6	100	4.2	5	21
24	100	25	0	0	7	100	3.7	5	18.5
25	100	30	0	0	8	100	1	1	1
26	100	36.5	5	182.5	9	100	2.7	1	2.7
27	100	30	0	0	10	100	1.5	5	7.5
28	100	30	0	0	11	100	2.7	0	0
29	100	26	0	0	Total Area C ASA				
30	100	30	0	0	627.2 m ²				
Total Area A ASA			6,032.5 m ²						
Available ASA below the barrier			5,693 m ²						

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
Area D									
1	100	14.5	0	0					
2	100	6.2	0	0					
3	100	10	1	10					
4	100	11.5	0	0					
5	100	3.4	1	3.4					
6	100	5.2	0	0					
7	100	3.4	0	0					
8	100	2.9	0	0					
9	100	6.8	0	0					
10	100	7.5	0	0					
11	100	5	0	0					
12	100	5	0	0					
13	100	4.3	0	0					
14	100	5.3	0	0					
15	100	5.2	0	0					
16	100	3.4	0	0					

Total Area D ASA 134.4 m²

Area D was above the barrier

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	20	0	0	1	100	18	0	0
2	100	18	1	18	2	100	12	0	0
3	100	16	0	0	3	100	11.6	0	0
4	100	15	1	15	4	100	16.1	5	80.5
5	100	14	5	70	5	100	13.1	5	65.5
6	100	11	5	55	6	100	10.0	5	50
7	100	8.6	10	86	7	100	6.6	20	132
8	100	6.5	10	65	8	100	8.7	20	174
9	100	3.4	5	17	9	100	15.8	15	237
10	100	14.5	1	14.5	10	100	7.4	5	37
11	100	11.5	5	57.5	11	100	4.5	0	0
12	100	9.5	5	47.5	12	100	3.9	1	3.9
13	100	7.2	5	36	13	100	8.0	0	0
14	100	8.8	10	88	14	100	8.0	1	8.0
15	100	8.6	1	8.6	15	100	8.6	0	0
16	100	5.2	5	26	16	100	6.4	0	0
17	100	11.5	5	57.5	Total Area F Area F was above a barrier.				787.9m ²
18	100	6.8	20	136					
19	100	8.8	5	44					
20	100	15	0	0					
21	100	7.5	1	7.5					
22	100	9.0	0	0					
23	100	8.9	0	0					
24	100	6.6	0	0					
25	100	9.0	0	0					

Total Area E
Area E was above a barrier.

849.1m²

107-10-20

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	150	11	1	11	1	100	3.0	15	45
2	100	6.5	15	97.5	2	100	3.4	35	119
3	100	8.6	1	8.6	3	100	8.0	20	160
4	100	9.0	20	180	4	100	9.0	15	135
5	100	7.2	25	180	5	100	3.9	1	3.9
6	100	2.9	30	87	6	100	5.0	1	<u>5.0</u>
7	100	2.6	0	0	Total Area H				467.9m ²
8	100	4.0	0	0	Area H was above a barrier.				
9	100	4.8	0	0					
10	100	6.2	0	<u>0</u>					
Total Area G				564.1m ²					
Area G was above a barrier.									

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Hofstad Creek - Area A ADF&G No. 107-10-20

1. Section Number	1	2	3	4	5	6	7	8	
2. Channel Type									
3. Riparian Vegetation Class	C3	C3	C3	C3	C1	C1	C1	C1	
4. Incision Depth (m)	.3	.3	.3	.3	.3	.1	.3	.1	
5. Lower Bank Composition									
a. bedrock or boulder	10			30	100	100	100	100	
b. rubble	10								
c. cobble	10	10	10						
d. decomposed organic material									
e. gravel	10	10	10	10					
f. sand & silt	60	80	80	60					
6. Bed substrate composition									
a. bedrock or boulder		10		10	55	82	92	97	
b. rubble & cobble	40	45	60	60	30	10	2	1	
c. coarse gravel	40	30	30	20	5	3	2	1	
d. fine gravel and sand	20	15	10	10	10	5	4	1	
e. silt-clay deposits									

7. Comments

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area A - Hofstad Cr.

ADF&G No. 107-10-20

1. Section Number	9	10	11	12	13	14	15	16	
2. Channel Type									
3. Riparian Vegetation Class	C1	C1	C1	C1	C1	C1	C5	C5	
4. Incision Depth (m)	20	8	.7	2	1	1	.5	.7	
5. Lower Bank Composition									
a. bedrock or boulder	100	100	100	100	100	100	100	100	
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt									
6. Bed substrate composition									
a. bedrock or boulder	100	100	100	100	99	99	100	100	
b. rubble & cobble					1	1			
c. coarse gravel									
d. fine gravel and sand									
e. silt-clay deposits									

7. Comments

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area A - Hofstad Creek

ADF&G No. 107-10-20

1. Section Number	17	18	19	20	21	22	23	24	
2. Channel Type									
3. Riparian Vegetation Class	C5	C5	C5	C5	C1	C1	C1	C1	
4. Incision Depth (m)	1	1	1	1.5	1	1	1	.5	
5. Lower Bank Composition									
a. bedrock or boulder	100	100	100	90	90	30	100	80	
b. rubble									
c. cobble									
d. decomposed organic material									
e. gravel									
f. sand & silt				10	10	70		20	
6. Bed substrate composition									
a. bedrock or boulder	98	98	92	92	45		95	95	
b. rubble & cobble	1	1	5	5	15		2	2	
c. coarse gravel	1	1	1	1	19		1	1	
d. fine gravel and sand			2	2	21		2	2	
e. silt-clay deposits									

7. Comments

Section 22: Unable to see bottom.

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area A - Hofstad Creek ADF&G No. 107-10-20

1. Section Number	25	26	27	28	29	30			
2. Channel Type									
3. Riparian Vegetation Class	C1	C1	C1	C1	C1	C1			
4. Incision Depth (m)	.5	1	.5	.3	.5	1			
5. Lower Bank Composition									
a. bedrock or boulder	80	70	80	20	10				
b. rubble		5		15	10				
c. cobble		5	5	20	15				
d. decomposed organic material									
e. gravel		5	5	15	15				
f. sand & silt	20	15	10	30	50	100			
6. Bed substrate composition									
a. bedrock or boulder	90	75	95	70	80	50			
b. rubble & cobble	5	21	3	20	18	45			
c. coarse gravel	3	2	1	5	2	5			
d. fine gravel and sand	2	2	1	5					
e. silt-clay deposits									

7. Comments

Section 30: Clay along lower left bank.

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area D - Hofstad Creek

ADF&G No. 107-10-20

1. Section Number	1	2	3	4	5	6	7	8	9
2. Channel Type									
3. Riparian Vegetation Class	C3	C3	C3	C3	C6	C5	C5	C5	C5
4. Incision Depth (m)	.3	.5	.5	1	.7	.7	.5	1	.7
5. Lower Bank Composition									
a. bedrock or boulder					10	40	60	80	15
b. rubble					10	30	25	25	5
c. cobble					5	5	5	5	5
d. decomposed organic material									
e. gravel					5				
f. sand & silt	100	100	100	100	70	25	10	10	10
6. Bed substrate composition									
a. bedrock or boulder					5	50	50	50	30
b. rubble & cobble				1	30	30	30	30	40
c. coarse gravel			5	5	5				
d. fine gravel and sand	100	100	95	94	59	20	20	20	30
e. silt-clay deposits									

7. Comments

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Area D - Hofstad Creek ADF&G No. 107-10-20

1. Section Number	10	11	12	13	14	15	16		
2. Channel Type									
3. Riparian Vegetation Class	C5	C5	C5	C5	C5	C5	C5		
4. Incision Depth (m)	.7	.3	.7	.8	1	1	.7		
5. Lower Bank Composition									
a. bedrock or boulder	70	75	75	75	70	15	15		
b. rubble	15	10	10	10	15	35	35		
c. cobble	5	5	5	5	5	30	30		
d. decomposed organic material									
e. gravel									
f. sand & silt	10	10	10	10	10	20	20		
6. Bed substrate composition									
a. bedrock or boulder	40	50	45	55	50	40	40		
b. rubble & cobble	40	40	40	35	40	50	40		
c. coarse gravel						1	5		
d. fine gravel and sand	20	10	15	10	10	9	15		
e. silt-clay deposits									

7. Comments

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A - HofstadCr. ADF&G No. 107-10-20

Date 8/24/84

1. Reach	1	1	1	1	2	2	2	2	2
2. Section	1 I	2 I	3 I	4 I	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2.5	2.0	2.0	2.0	3.0	3.5	3.0	4.0	4.0
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width a. channel	25	34	50	30	38	31	22	22	47.5
b. water	19	24	20	16	30	26	17	15	47.5
c. special character	--	--	--	--	--	--	--	--	--
7. Water Type % SS	60	75	60	90	30	50	30	20	20
SF	40	10	40	10	40	50	30	40	65
DS		15			30		40	40	15
DF									
8. Undercut Banks (m) left	0	0	0	0	0	0	0	0	0
right	0	0	0	0	0	0	0	0	0
9. Debris Cover % small	0	0	0	0	0	0	0	0	0
large	0	0	0	0	0	0	1	0	0
10. Riparian Vegetation %	0	0	0	0	5	5	5	5	5
11. Substrate %:									
a. boulders		10		10	5	2	2	2	2
b. cobble	40	45	60	60	30	10	2	1	
c. gravel	55	40	35	30	10	6	4	2	
d. sand	5	5	5		5	2	2		
e. organic muck									
f. bedrock					50	80	90	95	98
g. other									
12. ASA	95	50	90	50	1	1	1	1	0
13. Gravel Shape	1	1	1	1	1	1	1	1	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	A	A	A	B	B	B	B	B
15. Average Depth (cm)	30	30	11	45	10	30	25	13	40
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	--	--	--	--	--	--	--	--	--
18. Aquatic Vegetation									
a. type	2	2	2	2	2/3	2/3	2	1/3	1
b. density	1	1	1	1	1/3	1/3	1	1/3	1
19. Sampling	--	--	--	--	--	--	--	--	--
20. Rearing Area	60	60	60	90	60	50	70	60	20

21. Comments Section 1 is upper intertidal area. There are moderate amounts of fine gravel and sand underneath the top gravel and cobble covering. Adult PS are plentiful in the ITZ and are not utilizing the entire area designated as possible ASA. A tributary surveyed as Area B enters from the left bank at the end of the section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM Continued.

- Section 3: A tributary enters from the left bank and was surveyed as Area C. Grass flats along the upper right bank.
- Section 4: The ASA is decreasing in quality as the water velocity is slowing down. PS are utilizing the gravel that has good flow through it only. The section ends near the upper intertidal limit. Grass flats are along the right upper bank the first 75 m. The lower bank becomes bedrock 75 m into the section. Area C enters from the left bank.
- Section 5: Bedrock becomes the dominant substrate, and continues to do so until the survey is discontinued after section 30. A deep pool is present the first 30 m. Many holding pinks were observed.
- Section 6: There is only a small patch of poor quality ASA present. The stream becomes a bedrock channel. Adult PS are plentiful up to the barrier falls in section 10.
- Section 7: Steep upper banks.
- Section 8: Upper banks are very steep. Young alder is heavy along steep left bank.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A - Hofstad Cr. ADF&G No. 107-10-20

Date 8/24/84

1. Reach	2	2	2	2	2	2	2	2	2
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	30	6.0	7.0	3.5	3.0	2.5	3.0	3.0	2.5
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width a. channel	27.5	22	27.2	24	22.5	25	34	24	24.1
b. water	24.5	22	27.2	20	18	24	26	24	24
c. special character	--	--	--	--	--	--	--	--	--
7. Water Type % SS	10	15	15	30	40	40	50	75	75
SF	75	80	80	70	60	60	50	25	25
DS	15	5	5						
DF									
8. Undercut Banks (m) left	0	0	0	0	0	0	0	0	10
right	0	0	0	0	0	10	0	0	0
9. Debris Cover % small	0	0	0	0	0	0	0	0	0
large	0	0	0	0	0	0	0	0	0
10. Riparian Vegetation %	5	5	5	5	5	5	5	5	5
11. Substrate %:									
a. boulders				1	1	1	1	5	5
b. cobble				1	1			1	1
c. gravel								1	1
d. sand									
e. organic muck									
f. bedrock	100	100	100	98	98	99	99	93	93
g. other									
12. ASA	0	0	0	0	0	0	0	0	0
13. Gravel Shape	--	--	--	--	1	1	1	1	1
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	20	11	15	20	11	10	7	10	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	2	2	2	2	2	2	2	2	2
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1	1/2	1/3
b. density	1	1	1	1	1	1	1	1/3	1/3
19. Sampling	--	--	--	--	--	--	--	--	--
20. Rearing Area	20	15	15	30	40	40	50	75	75
21. Comments									

Section 10: The section starts at the foot of a barrier falls. The falls is stairstep bedrock with a 55% gradient for 50 meters. The largest step is about 8 in. vertical height.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

- Section 11: The section begins at the foot of 170 m of bedrock cataracts. The first stretch is about 20 m long and had a 20% gradient. A 3 m vertical rise barrier is present 50 m into the section.
- Section 14: A small seep enters from the right bank near the start of the section.
- Section 16: A $.09 \text{ m}^3/\text{sec.}$ tributary enters from the right bank at the end of the section. The temperature and pH are 12.5°C and 7.5 respectively. The tributaries substrate is primarily bedrock. No ASA and little rearing area is provided. The gradient of the tributary is 8% for 100 m, then 12% for the second 100 m. At 200 m there is a 3.5 m falls (gradient 30%). Above the falls is mostly boulder and large cobble with a gradient of 6%.
- Section 18: Bedrock schist along both banks. Left bank is steep bedrock schist for 20 m.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A - Hofstad Cr. ADF&G No. 107-10-20

Date 8/24/84

1. Reach	2	2	2	2	2	2	2	2	2
2. Section	19	20	21	22	23	24	25	26	27
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2.5	2.0	1.5	1.0	2.0	2.0	2.0	1.5	5.0
5. Water Quality	4	4	4	4	4	4	4	4	4
6. Water Width a. channel	22	20	40	31	22	25	30	36.5	30
b. water	22	20	17	30	22	25	30	36.5	30
c. special character	--	--	--	--	--	--	--	--	--
7. Water Type % SS	50	90	85	15	70	80	80	90	63
SF	50	10	15		30	20	20	20	35
DS				85					
DF									
8. Undercut Banks (m) left	0	0	10	10	0	10	10	20	10
right	0	0	10	10	0	10	20	20	30
9. Debris Cover % small	0	0	0	0	0	0	0	0	0
large	0	0	1	0	0	1	0	1	0
10. Riparian Vegetation %	5	5	5	5	5	5	5	5	5
11. Substrate %:									
a. boulders					1	1		60	35
b. cobble	5	5	15		2	2	5	21	3
c. gravel	2	2	38		2	2	4	3	2
d. sand	1	1	2		1	1	1	1	
e. organic muck									
f. bedrock	92	91	45		94	94	90	15	65
g. other									
12. ASA	0	1	5	1	1	0	0	5	0
13. Gravel Shape	1	1	1	1	1	1	1	1	1
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	15	11	12	30	25	10	15	25	5
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	--	--	--	--	--	--	--	--	6
18. Aquatic Vegetation									
a. type	1	1	1	2	1/2	1/2	1	1	1
b. density	1	1	1	2	1/3	1/3	1	1	1
19. Sampling	--	--	--	--	--	--	--	--	--
20. Rearing Area	90	100	85	100	70	80	80	90	65
21. Comments									

Section 19: A small trickle tributary enters from the right bank at the end of the section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

- Section 20: A trace of poor quality ASA is available along the edges of the stream. Most of the stream bed is solid bedrock with a little cobble or gravel collecting behind the ridges of bedrock. A $.014 \text{ m}^3/\text{sec.}$ tributary enters from the right bank 30 m into the section. Some rearing habitat is available in the tributary but little ASA.
- Section 21: The upper end of the section has a short stretch of poor ASA where small gravel has collected below a very large pool. Lower banks are mostly bedrock schist.
- Section 22: The entire section is a large pool 50 m in width. Rearing trout are observed feeding in the pool. The bottom substrate could not be determined.
- Section 24: A thin layer of gravel, cobble and sand is overlying the bedrock stream bottom. It probably is not suitable for ASA.
- Section 25: Lower bank is mostly all schist and broken schist mixed with sand.
- Section 26: Section 26 has a substrate of flat large cobble and flat small boulders. Poor rearing area - no cover. A lot of fractured schist along lower banks.
- Section 27: Bedrock again becomes the stream substrate. A bedrock cataract 60 m long with an 8% gradient is present. It could be a barrier due to shallow water depth at the present flow.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A - Hofstad Cr. ADF&G No. 107-10-20

Date 8/ 24/85

1. Reach	2	2	2						
2. Section	28	29	30						
3. Section Length (m)	100	100	100						
4. Gradient	2.0	2.0	2.0						
5. Water Quality	4	4	4						
6. Water Width a. channel	30	26	30						
b. water	30	26	30						
c. special character	--	--	--						
7. Water Type % SS	35	25	5						
SF	35	25	95						
DS	30	50							
DF									
8. Undercut Banks (m) left	20	30	90						
right	20	10	90						
9. Debris Cover % small	0	0	0						
large	0	0	0						
10. Riparian Vegetation %	5	5	5						
11. Substrate %:									
a. boulders	20	20	43						
b. cobble	20	18	45						
c. gravel	10	2	5						
d. sand	1	1	1						
e. organic muck			1						
f. bedrock	49	59							
g. other									
12. ASA	0	0	0						
13. Gravel Shape	2,3	2,3	2,3						
14. Streambank Vegetation									
a. percentage	100	100	100						
b. type	B	B	B						
15. Average Depth (cm)	40	100	30						
16. Beaver Activity	6	5	5						
17. Potential Barrier	--	--	--						
18. Aquatic Vegetation									
a. type	1/4,3	1/4,3	1/4						
b. density	1/3	1/3	1/3						
19. Sampling	--	--	--						
20. Rearing Area	65	75	100						
21. Comments									

Section 30: Clay is along the lower left bank. Lack of cover for rearing.

The survey is discontinued at the end of the section because the water is too deep and dark to survey. It continues in the same fashion for 400 meters to the outlet of Hofstad Lake.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area B - Hofstad Cr. ADF&G No. 107-10-20

Date 6/17/84

1. Reach	1	1	1	1	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	3	3	3.5	3.5	4	4	4	4
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	47	13.3	14	15	11.1	13.5	11.2	11.5	8.6
b. water	11	6.9	9.4	15	11.1	6.1	4.8	9.5	6.6
c. special character	1	--	--	--	--	--	--	--	1
7. Water Type % SS	35	25	25	10	15	15	20	25	20
SF	35	50	45	70	75	60	60	60	60
DS	25	20	25	15		10	10	10	15
DF	5	5	5	5	10	15	10	10	5
8. Undercut Banks (m) left	0	10	10	10	0	0	0	0	5
right	5	10	5	0	0	0	0	5	5
9. Debris Cover % small	1	1	1	1	1	2	1	1	3
large	13	1	7	0	3	10	7	6	15
10. Riparian Vegetation %	5	5	15	15	10	15	10	10	10
11. Substrate %:									
a. boulders	10	30	35	45	60	60	5	50	30
b. cobble	30	30	25	15	15	10	45	20	25
c. gravel	45	25	20	15	10	10	20	5	15
d. sand	15	15	20	15	10	10	20	5	25
e. organic muck									
f. bedrock				10	5	10		20	5
g. other									
12. ASA	20	20	5	5	5	5	60	1	15
13. Gravel Shape	1	1	1	1,2	1	1,2	1,2	1,2	1,2
14. Streambank Vegetation									
a. percentage	30/70	100	100	100	100	100	100	100	100
b. type	A/B	B	B	B	B	B	D	D	D
15. Average Depth (cm)	15	15	45	12	25	45	22	25	12
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	--	--	--	--	--	--	--	--	--
18. Aquatic Vegetation									
a. type	3	2,3	1,2,3	1,2,3	1,3	1,3	1,3	1,3	1,3
b. density	2	1	1	1	1	1	1	1	1
19. Sampling	--	--	Y	--	--	Y	--	--	--
20. Rearing Area	20	20	50	15	15	30	20	30	30
21. Comments									

Section 1: The stream is braided within the wide channel at the confluence with the main stem. Hand logging sign is evident on the upper banks. The rearing habitat is not good quality due to the lack of cover through most of the section. There is a fair amount of ASA, but it is not exceptional quality due to the flat shape of the substrate. Flow estimated at 1.14 m³/sec.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

Section 2: The percentage of boulders in the substrate increases and stretches of bedrock become apparent.

Section 5: The stream forks nearly in half 25 m into the section. The left fork has an estimated flow of about $.6 \text{ m}^3/\text{sec.}$ and has a 4 m barrier bedrock falls 100 m further upstream. The left fork averages 8 m in width and contains about 15% ASA. A second set of barrier falls is present 25 m above the first falls. The second falls is a two tiered bedrock formation with a 3.5 m and 5 m falls present. The steep bedrock upper banks appear to be very unstable around the falls. A helicopter reconnaissance above here found the stream forking and becoming whitewater. The survey continued up the right fork.

Section 6: Alder is abundant along the banks.

Section 7: A 1 m falls is present but is probably not a barrier. A deep pool is present. This section contains a good stretch of ASA. The substrate is cobble and quite a bit of sand is present. Alder is growing along the right bank.

Section 8: Fontinalis moss present. A great deal of blowdown from south winds are present on the steep unstable upper right bank in sections 8 and 9. An increased amount of fines were observed in the substrate near unstable areas.

Section 9: A debris dam is present 50 m into the section. Some braiding is present. Coho fry were abundant.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area B - Hofstad Cr. ADF&G No. 107-10-20 Date 6/17/84

1. Reach	2	2	3	3	3				
2. Section	10	11	12	13	14				
3. Section Length (m)	100	100	100	100	100				
4. Gradient	4	4	4	4	5				
5. Water Quality	3	3	3	3	3				
6. Water Width a. channel	9.4	7.2	11	11.8	10.9				
b. water	7.4	3.5	6.2	7.2	9.1				
c. special character	--	--	--	--	1				
7. Water Type % SS	25	25	30	25	25				
SF	55	50	60	65	60				
DS	20	20	10	10	15				
DF		5							
8. Undercut Banks (m) left	0	0	20	0	5				
right	0	0	15	0	5				
9. Debris Cover % small	1	5	1	1	10				
large	7	15	1	5	25				
10. Riparian Vegetation %	10	10	10	10	50				
11. Substrate %:									
a. boulders	30	50	50	64	35				
b. cobble	20	25	35	25	35				
c. gravel	10	5	10	5	20				
d. sand	10	5	5	5	10				
e. organic muck									
f. bedrock	30	15		1					
g. other									
12. ASA	5	1	10	5	5				
13. Gravel Shape	1,2	1,2	1,2	2	1,2				
14. Streambank Vegetation									
a. percentage	100	100	100	100	100				
b. type	D	D	D	D	D				
15. Average Depth (cm)	17	30	10	15	20				
16. Beaver Activity	5	5	5	5	5				
17. Potential Barrier									
18. Aquatic Vegetation									
a. type	1,3	1,3	1,3	1,3	1,3				
b. density	1	1	1	1	1				
19. Sampling	--	--	--	--	--				
20. Rearing Area	25	30	30	15	40				
21. Comments									

Section 12: The patches of bedrock substrate end and the ASA improves.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

Section 13: Rearing coho are still abundant. The rearing habitat lacks excellent cover, but there are a number of deep slow pools available.

Section 14: The last 50 m of the section is braided. Several debris dams that could hinder upstream fish migration are present. The survey is discontinued at the end of section 14. A set of barrier falls, 3 m and 14 m respectively, are located 86 m beyond the end of the survey. The steep banks are made of unstable schistose type rock. A 2.5 m barrier falls is present immediately above the 14 m falls. The gradient then flattens out to a 2% gradient, but the substrate is predominately bedrock and boulders with just small patches of ASA. A helicopter reconnaissance above here showed little improvement in habitat before the stream became whitewater as the gradient increased.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area C - Hofstad Cr ADF&G No. 107-10-20

Date 6/17/84

1. Reach	1	1	1	1	1	1	1	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	3	3	4	5	5	5	5	7
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	19.1	6.6	7.8	3.9	8.5	4.2	3.7	6.8	5.2
b. water	41.1	3.5	7.8	3.9	4	4.2	3.7	1	2.7
c. special character	--	--	--	--	1	--	--	--	--
7. Water Type % SS	35	25	20	35	30	30	30	20	30
SF	65	50	55	40	50	60	60	60	60
DS		25	25	25	20	10	10	20	10
DF									
8. Undercut Banks (m) left	10	15	10	20	40	50	50	20	20
right	10	15	10	10	40	30	30	20	20
9. Debris Cover % small	1	5	5	5	5	5	10	10	10
large	3	25	20	35	30	40	35	25	40
10. Riparian Vegetation %	5	15	20	20	30	30	35	50	50
11. Substrate %:									
a. boulders		20	1	1	1	30	40	40	44
b. cobble	30	30	39	45	49	40	30	30	35
c. gravel	30	20	30	25	40	20	20	15	15
d. sand	20	20	30	29	10	10	10	5	5
e. organic muck									
f. bedrock	20	10						10	1
g. other									
12. ASA	60	5	30	10	10	5	5	1	1
13. Gravel Shape	1	1	1,2	1,2	1,2	1,2	1	1	1
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	D	D
15. Average Depth (cm)	15	8	20	10	9	5	10	6	15
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	--	--	--	--	--	--	6	--	--
18. Aquatic Vegetation									
a. type	2,3	1,2,3	1,2,3	1,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
b. density	1	1	1	1	2	2	2	2	2
19. Sampling	-	Y	Y	-	-	-	-	-	-
20. Rearing Area	35	70	65	80	60	50	50	30	40
21. Comments									

Section 1: The ASA substrate has a moderate covering of filamentous algae. Hand logging is evident. The flow was estimated to be .2 m³/sec. The water temperature was 9.5°C and the pH 6.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

- Section 2: The stream enters an area with a massive amount of large debris across the stream. The stream provides excellent rearing habitat but is difficult to survey.
- Section 3: The upper banks have severe blowdown from southerly winds. Ten rearing coho were observed trapped in a pool.
- Section 5: Rearing coho were abundant in the main stem. The main stem forks 20 m into the section. A majority of the flow continues up the left fork and it is surveyed. A reconnaissance of the right fork was made however. The flow was estimated to be .05 m³/sec. and the substrate was 30% sand, 10% bedrock, 30% boulders, and 30% gravel/cobble. There were stretches with up to 50% ASA, along with excellent rearing habitat. No rearing coho were observed however, which was quite surprising. A heavy debris load provided excellent cover. A moderate to dense Fontinalis growth was present. The temperature was 9°C and the pH 6.5.

A reconnaissance of the right fork was made on 9/3/84. Good numbers of spawning PS were present. Most of the PS were present in the first 400 m which had 50% ASA and averaged 2.5 m in width. The substrate contained a heavy load of silt and the banks appeared unstable. A large amount of blowdown was present across the stream. The water was cloudy just from dirt and silt disturbed by the movements of the PS. The gradient increased to 5% over the next 200 m and the ASA decreased to 15%. The stream was in a high water stage but there were still stretches where the PS were having trouble negotiating areas of shallow water.

The right fork branched again with the left branch increasing in gradient to 7% and the substrate turning to boulder. Only a half dozen pinks had negotiated up the stream this far. The right branch continued to have patches of poor quality, silty ASA. However fair numbers of PS were observed for about 400 m further. There were quite a few PS carcasses present in this stretch and many of them were completely covered with silt, indicating the heavy silt load of the substrate. The stream was muddy from the PS disturbing the substrate.

- Section 6: The substrate size is increasing and the quality of the ASA is declining.
- Section 7: The depth of the stream in places would hinder fish passage at the present flow. Rearing coho were abundant.
- Section 8: The stream enters a v-notch with steep unstable banks.
- Section 9: Rearing coho were still observed with regularity.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area C - Hofstad Cr ADF&G No. 107-10-20 Date 6/17/84

1. Reach	2	3							
2. Section	10	11							
3. Section Length (m)	100	100							
4. Gradient	7	10							
5. Water Quality	.3	3							
6. Water Width a. channel	5.6	7							
b. water	1.5	2.7							
c. special character	--	--							
7. Water Type % SS	30	30							
SF	60	70							
DS	10								
DF									
8. Undercut Banks (m) left	20	0							
right	20	0							
9. Debris Cover % small	10	10							
large	90	50							
10. Riparian Vegetation %	75	75							
11. Substrate %:									
a. boulders	45	64							
b. cobble	35	25							
c. gravel	15	10							
d. sand	5	1							
e. organic muck									
f. bedrock									
g. other									
12. ASA	5	0							
13. Gravel Shape	1	2							
14. Streambank Vegetation									
a. percentage	100	100							
b. type	D	D							
15. Average Depth (cm)	10	15							
16. Beaver Activity	5	5							
17. Potential Barrier	--	3							
18. Aquatic Vegetation									
a. type	1,2,3	1,2,3							
b. density	2	2							
19. Sampling	--	--							
20. Rearing Area	60	50							
21. Comments									

Section 10: Stink currant and devil's club are heavy along the stream.
The debris loading is extremely heavy.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

Section 11: A small tributary enters from the left bank. No rearing habitat or ASA is present. The temperature and pH were 9°C and 5.5, respectively.

No rearing coho were observed in this section. A 1 m debris barrier is present. The survey was discontinued at the end of the section. The gradient has increased dramatically and appears to continue to increase.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area D - Hofstad Cr. ADF&G No. 107-10-20

Date 8/24/84

1. Reach	1	1	1	1	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	.5	.5	.5	1.0	2.0	3.5	4.0	3.0	3.0
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	14.5	14.9	11.5	11.5	9.1	6.8	6.2	6.6	7.6
b. water	14.5	6.2	10	11.5	3.4	5.2	3.4	2.9	6.8
c. special character	--	--	--	--	--				
7. Water Type % SS	30	20	30	30	35	35	30	40	50
SF					15	60	70	60	50
DS	70	80	70	70	50	5			
DF									
8. Undercut Banks (m) left	30	80	10	40	10	0	0	0	0
right	30	0	50	10	10	0	0	0	0
9. Debris Cover % small	0	2	2	5	10	0	0	0	0
large	5	5	3	2	25	3	1	1	0
10. Riparian Vegetation %	10	10	5	5	5	5	0	0	0
11. Substrate %:									
a. boulders					5	50	50	50	30
b. cobble				1	30	30	30	30	40
c. gravel	10	10	15	15	30				
d. sand	90	90	85	84	35	20	20	20	30
e. organic muck									
f. bedrock									
g. other									
12. ASA	0	0	1	0	1	0	0	0	0
13. Gravel Shape	1	1	1	1,3	1,2,3	2,3	2,3	2,3	2,3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	A	A	A	A	B	B	B	B
15. Average Depth (cm)	35	50	60	30	50	13	15	15	10
16. Beaver Activity	5	7	7	7	5	5	5	5	5
17. Potential Barrier	--	--	--	--	--	--	--	--	--
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1	1	1
b. density	3	3	3	3	2	1	1	1	1
19. Sampling	--	--	--	--	--	--	--	--	--
20. Rearing Area	100	100	100	100	100	100	100	100	100
21. Comments									

Section 1: Water is deep and slow as the stream enters into Hofstad Lake. Only rearing area is provided. Fontinalis moss is present in low density. The water temperature is 12°C and the pH is 6. Flow was estimated at .25 m³/sec. Several trout were seen rising in pool area.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

- Section 2: Many deep pools for rearing are present.
- Section 3: A few riffles are present. The substrate is sand and very fine gravel and there is little, if any, ASA.
- Section 4: A small trickle tributary enters from the left bank 30 m into the section. The tributary forms a few pools and provides limited rearing habitat. The substrate is sand and fine gravel, but some coarse gravel is present 50 m upstream and could provide limited ASA with a higher water discharge. A flood channel is present 80 m into the channel along the left bank.
- Section 5: The gradient increases and a massive amount of debris is present from blowdown due to SW winds. The stream is braided within the main channel. Unstable cut banks consisting of sand are present. Boulders begin to appear along the lower banks the last 30 m; good cover for rearing.
- Section 6: Fontinalis growth gets quite dense at the end of section 5 and continues through the survey. The habitat continues to change with the substrate becoming dominated by mossy boulders and very compact cobble set in sand. No ASA is available. This habitat continues through section 11. Poor rearing; little cover.
- Section 7: Gradient was 5% for the first 30 m then 3.5% for 70 m. The lower bank stability has improved with many boulders present in the lower bank substrate. Poor rearing habitat is provided due to a lack of cover.
- Section 8: Poor rearing - no cover. Fontinalis growth is heavy.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area D - Hofstad Cr ADF&G No. 107-10-20

Date 8/24/84

1. Reach	2	2	2	2	2	2	2		
2. Section	10	11	12	13	14	15	16		
3. Section Length (m)	100	100	100	100	100	100	100		
4. Gradient	3.0	4.0	4.0	4.5	4.5	2.5	2.5		
5. Water Quality	3	3	3	3	3	3	3		
6. Water Width a. channel	8	9.4	5.3	3.3	5.3	7.2	5.5		
b. water	7.5	5	5	4.3	5.3	5.2	3.4		
c. special character	--	--	--	--	--	--	--		
7. Water Type % SS	50	30	30	30	35	50	70		
SF	50	70	70	70	60	50	30		
DS					5				
DF									
8. Undercut Banks (m) left	0	0	0	0	0	0	10		
right	0	0	0	0	0	0	10		
9. Debris Cover % small	0	0	0	0	0	0	10		
large	1	0	0	0	1	1	20		
10. Riparian Vegetation %	0	0	5	5	5	5	5		
11. Substrate %:									
a. boulders	40	50	45	50	50	40	40		
b. cobble	40	40	40	35	40	50	40		
c. gravel	T	T	T		1	2	10		
d. sand	20	10	15	10	9	8	10		
e. organic muck									
f. bedrock				5					
g. other									
12. ASA	0	0	0	0	0	0	0		
13. Gravel Shape	2.3	2.3	2.3	2.3	2.3	2.3	2.3		
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100		
b. type	B	B	B	B	B	B	B		
15. Average Depth (cm)	10	10	10	15	15	20	13		
16. Beaver Activity	5	5	5	5	5	5	5		
17. Potential Barrier	--	--	--	--	--	--	--		
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1		
b. density	1	1	1	1	1	1	1		
19. Sampling	--	--	--	--	--	--	Y		
20. Rearing Area	50	30	30	30	35	50	70		
21. Comments									

Section 12: The gradient increases slightly and the boulders become larger. The stream is nearly all whitewater in this section.

Section 13: A small muskeg seep enters from the left bank.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM continued.

Section 14: A $.03 \text{ m}^3/\text{sec.}$ tributary enters from the left bank at the end of the section. The tributary has little fisheries habitat. The substrate is predominately boulders and sand.

Section 15: Gradient decreases - more sand and less boulder on lower banks. More shallow slow water is present.

Section 16: A $.03 \text{ m}^3/\text{sec.}$ tributary enters from the left bank. The substrate is mossy boulders and the gradient is 5%. There is no ASA and little rearing habitat provided in the tributary.

The survey is discontinued at the end of this section. A reconnaissance beyond the end of the survey found that the habitat remained constant for about 400 meters. The stream then forked with the bulk of the flow going left up a gradient of 5%. There was little rearing habitat and no ASA. The substrate was mossy boulders. The right fork was just a trickle. The substrate was sand and boulders. Rearing trout had been observed up to this point and there were no barriers observed.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area E ADF&G No. 107-10-20 Date 6/9/84

1. Reach	1	1	1	1	1	1	1	1	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.0	3.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	20	18	19	15	14	11	8.6	15	20
b. water	20	18	16	15	14	11	8.6	6.5	3.5
c. special character	--	--	--	--	--	1	--	3	--
7. Water Type % SS	5	25	25	40	40	45	45	40	40
SF	--	--	--	5	5	10	10	20	20
DS	95	75	75	55	55	45	45	40	40
DF									
8. Undercut Banks (m) left	30	30	30	60	60	60	40	35	40
right	30	60	30	60	60	80	50	30	30
9. Debris Cover % small	0	1	2	3	2	5	5	5	2
large	0	4	6	6	5	10	10	10	10
10. Riparian Vegetation %	3	3	5	10	10	20	15	15	15
11. Substrate %:									
a. boulders									
b. cobble	20	30	30	45	50	40	60	60	80
c. gravel	60	40	30	30	30	30	30	30	15
d. sand	10	30	40	25	20	30	10	10	5
e. organic muck	10								
f. bedrock									
g. other									
12. ASA	0	1	0	1	5	5	10	10	5
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	A	A	A	A	A	A	A	A
15. Average Depth (cm)	75	150	60	90	20	45	120	15	13
16. Beaver Activity	6	6	6	6	6	6	6	6	6
17. Potential Barrier	--	--	--	--	--	--	--	--	--
18. Aquatic Vegetation									
a. type	1	1	1,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
b. density	3	2	2	2	2	2	2	2	2
19. Sampling	--	--	--	--	--	--	--	--	--
20. Rearing Area	100	85	80	85	70	60	60	60	50
21. Comments									

Section 1: Started at the inlet to Hofstad Lake. Water temperature, 10°C; pH, 6. A beaver was observed swimming in the stream. Flow was estimated at .93 m³/sec. Excellent rearing habitat is provided, but little if any ASA due to the deep, slow nature of the stream.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area E ADF&G No. 107-10-20 Date 6/9/84

1. Reach	2	2	2	2	2	2	2	2	2
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	3	3	3	3	3.5	3.5	3.5	3.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	20	11.5	11.5	11	17	14.3	17	13.5	12.5
b. water	14.5	11.5	9.5	7.2	8.8	8.6	5.2	11.5	6.8
c. special character	1	3	3	3	--	--	--	1	1
7. Water Type % SS	40	40	55	55	50	30	30	20	55
SF	20	20	15	15	20	50	45	60	35
DS	40	40	30	30	30	20	25	20	10
DF									
8. Undercut Banks (m) left	30	25	20	20	25	5	10	10	30
right	30	25	20	20	30	15	10	10	40
9. Debris Cover % small	2	3	2	3	1	1	3	1	0
large	10	10	7	10	2	3	10	7	6
10. Riparian Vegetation %	25	15	20	15	10	10	15	10	5
11. Substrate %:									
a. boulders		20	5	10	20	30	60	15	30
b. cobble	80	60	80	80	70	60	30	75	60
c. gravel	10	10	10	5	5	5	5	5	5
d. sand	10	10	5	5	5	5	5	5	5
e. organic muck									
f. bedrock									
g. other									
12. ASA	1	5	5	5	10	1	5	5	20
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	B	B	B	B	B	B	B	B
15. Average Depth (cm)	20	20	27	20	17	45	15	30	15
16. Beaver Activity	6	6	6	6	6	6	6	6	6
17. Potential Barrier	--	--	--	--	--	--	--	--	--
18. Aquatic Vegetation									
a. type	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
b. density	2	2	2	2	2	2	2	2	2
19. Sampling	--	--	--	Y	--	--	--	--	--
20. Rearing Area	50	50	50	50	50	25	20	20	20
21. Comments									

Section 10: The stream is braided 85 m. into the section.

Section 11: A channel to the right is present for 250 m. The channel contains some fair ASA in the lower stretch only.

Section 14: Icing sign was observed.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

- Section 3: Iron bacteria were present in a 20 m. stretch.
Aquatic vegetation growth densities were sparse in riffle areas,
but heavy in slower moving areas. Fontinalis was present.
- Section 6: The stream separates into two separate channels for 50 m.
- Section 7: The substrate size is increasing. The ASA substrate is still rather
loose but contains large cobble.
- Section 8: Dry, high water channels are present in this section. The stream
contains patches of good riffle area.
- Section 9: A heavy growth of algae is present on the substrate in places. The
riffle areas continue in this reach.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 15: Bedrock is present along the left bank for 20 m. More shallow, fast water is present in this section. There is less rearing area available.

Section 16: The stream braids within the channel at the end of the section. The water temperature has increased to 13°C.

Section 17: An active channel with a water and channel width of 9 m. is present to the left for about 150 m. Some riffles are present and the ASA is 5%.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area E ADF&G No. 107-10-20 Date 6/9/84

1. Reach	2	2	2	3	3	3	3		
2. Section	19	20	21	22	23	24	25		
3. Section Length (m)	100	100	100	100	100	100	100		
4. Gradient	3	3	3	3	3.5	3.5	3.5		
5. Water Quality	3	3	3	3	3	3	3		
6. Water Width a. channel	12.5	15	9	13.3	11	11.2	9.3	10	
b. water	8.8	15	7.5	9	8.9	6.6	9	8	
c. special character	--	--	--	--	--	--	--		
7. Water Type % SS	20	60	45	60	50	30	30		
SF	60	10	25	40	45	60	60		
DS	20	30	30		5	10	10		
DF									
8. Undercut Banks (m) left	15	6	5	10	0	0	0		
right	40	10	5	10	0	0	0		
9. Debris Cover % small	0	0	0	0	0	0	0		
large	1	6	0	0	0	0	0		
10. Riparian Vegetation %	10	5	5	5	5	5	5		
11. Substrate %:									
a. boulders	30	40	60	40	69	55	20		
b. cobble	60	50	40	50	19	10	5		
c. gravel	5	5	5	5	1				
d. sand	5	5	5	5	1				
e. organic muck									
f. bedrock					10	35	75		
g. other									
12. ASA	5	0	1	0	0	0	0		
13. Gravel Shape	2	2	2	2	2	2	2		
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100		
b. type	B	B	B	B	B	B	B		
15. Average Depth (cm)	15	20	30	25	10	17	17		
16. Beaver Activity	6	5	5	5	5	5	5		
17. Potential Barrier	--	--	--	--	--	--	--		
18. Aquatic Vegetation									
a. type	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3		
b. density	2	2	2	2	2	2	2		
19. Sampling	--	--	--	--	--	--	--		
20. Rearing Area	20	30	30	25	15	20	15		
21. Comments									

Section 19: A small trickle tributary enters from the left bank at the end of the section. There is little canopy cover or overhanging riparian vegetation present on the main stem.

Section 21: A small tributary enters from the right bank. Water temperature, 10°C. The tributary enters a steep V-notch. The tributary's substrate is predominantly large cobble and boulders with a heavy moss growth. No ASA or rearing area is provided.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

- Section 22: A 1.5 m. falls which is not a complete barrier is present 75 m. into the section. The moss growth gets heavier above the falls. The fisheries habitat is decreasing. There is little if any ASA and the rearing habitat has little cover.
- Section 23: Flagging from a mining claim crosses the stream. Bedrock is present in the stream.
- Section 24: A small tributary enters from the left bank. The water temperature and pH were 9.5°C and 6.5, respectively. The substrate is moss covered bedrock and no ASA or rearing area is present.
- Section 25: The survey is discontinued at the end of the section. A bedrock stairstep falls that is not a barrier at the present flow is 50 m. beyond the end of the survey. The stairstep falls forms a velocity barrier at high water levels. A tributary with a flow of 0.3m³/sec. enters from the left bank immediately above the falls. The gradient is 4% and the substrate is primarily large cobble and boulders with stretches of bedrock.

A reconnaissance upstream at two sites found no improvement in habitat. The gradient was 3% at a major fork in the stream about 1200 m. upstream. The right fork that goes to a large lake was 11.5°C. A large barrier falls with a vertical rise at about 30 m. is present on the right fork. The left fork had a substrate of compact boulder/large cobble with very limited ASA. The rearing habitat was limited also by the uniform swift nature of the stream which was 10.5 m. in width and 30 cm. deep at the present high water stage. The water temperature was 10°C.

The gradient was 5%, 800 m. further up the left fork, and the habitat was essentially unchanged except bedrock was present in the substrate.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area F ADF&G No. 107-10-20 Date 6/18/84

1. Reach	1	1	1	1	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1.5	1.5	1.5	1.5	2	2	2.5	2.5	3
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	18	12	11.6	18.1	13.1	18	11	10.5	15.8
b. water	18	12	11.6	16.1	13.1	10	6.6	8.7	15.8
c. special character	--	--	--	1	--	--	1	--	1
7. Water Type % SS	10	10	20	30	30	30	30	40	30
SF			5	15	20	20	30	30	40
DS	90	90	75	55	50	50	40	30	30
DF									
8. Undercut Banks (m) left	40	60	60	70	70	60	40	60	60
right	60	60	60	50	40	40	40	60	40
9. Debris Cover % small	0	0	1	2	2	5	10	10	10
large	1	3	5	8	8	10	20	30	40
10. Riparian Vegetation %	5	5	5	10	10	15	20	30	25
11. Substrate %:									
a. boulders							1	1	25
b. cobble				1	10	1	10	35	35
c. gravel		1	1	20	30	50	60	30	25
d. sand	100	99	99	79	60	49	29	34	15
e. organic muck									
f. bedrock									
g. other									
12. ASA	0	0	0	5	5	5	20	20	15
13. Gravel Shape	--	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	50/50	100	100	100	100	100	100	100
b. type	A	A/B	B	B	B	B	B	B	B
15. Average Depth (cm)	105	90	70	70	50	55	35	50	25
16. Beaver Activity	6	6	6	6	6	6	6	6	6
17. Potential Barrier	--	--	--	--	--	--	--	--	--
18. Aquatic Vegetation									
a. type	1,4	1	1	1,3	1,3	1,3	1,2,3	1,2,3	1,2,3
b. density	3	3	3	1	2	2	1	1	2
19. Sampling	Y	--	--	--	--	--	--	Y	--
20. Rearing Area	100	100	90	80	80	75	80	80	70
21. Comments									

Section 1: The stream is mainly a deep pool at the start of the section. The survey is started about 300 m. upstream from the lake. A tributary from the right bank that was surveyed as Area G enters Area F at the starting point. The flow of Area G was estimated at $.4\text{m}^3/\text{sec}$. The temperature and pH were 9°C and 7 respectively.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

- Section 2: Fontinalis moss is present on portions of the submerged debris. Excellent rearing area is provided. The very sluggish water flow and extremely small substrate do not provide much ASA.
- Section 4: Small riffles were observed and the habitat now provided some ASA. Fontinalis growth was heavy in Section 4. Some slight braiding is present at the start of the section. The ASA is poor quality due to the presence of sand in the substrate and a moderate vegetative growth on the gravel.
- Section 6: A small tributary enters from the left bank. The flow was estimated at $.03\text{m}^3/\text{sec}$. and the temperature and pH were 9°C and 6.5 respectively. No ASA and little rearing area is provided by the tributary. The water is quite shallow, and a heavy growth of filamentous algae and Fontinalis moss is present. The tributary is an outlet from a large active beaver dam area.
- Section 7: The stream is very braided at the end of the section. The ASA is good quality. Exposed blue clay is present along the undercut bank in places. There is much criss-crossed blowdown on both banks and across the stream in Sections 7 through 9.
- Section 8: The ASA substrate is getting larger and more compact. The banks are severely cut. The end of Section 8 and the start of Section 9 are very braided.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area F ADF&G No. 107-10-20 Date 6/18/84

1. Reach	3	3	3	3	3	3	3		
2. Section	10	11	12	13	14	15	16		
3. Section Length (m)	100	100	100	100	100	100	100		
4. Gradient	5	5	7	7	8	9	9		
5. Water Quality	3	1	1	1	1	1	1		
6. Water Width a. channel	8.4	10	11.9	9.3	8	10	10.5	8.8	
b. water	7.4	4.5	3.9	8	8	8.6	6.4	6.2	
c. special character	--	1	--	--	1	1	--		
7. Water Type % SS	10	10	10	10	20	10	10		
SF	70	80	80	80	70	75	75		
DS	20	10	10	10	10	15	15		
DF									
8. Undercut Banks (m) left	30	20	10	10	5	0	0		
right	30	40	10	5	5	0	0		
9. Debris Cover % small	5	5	5	3	2	2	0		
large	25	25	20	15	10	10	1		
10. Riparian Vegetation %	20	20	15	10	10	5	5		
11. Substrate %:									
a. boulders	45	70	70	89	90	95	94		
b. cobble	40	20	15	5	5	4	4		
c. gravel	10	5	10	5	5	1	1		
d. sand	5	5	5	1			1		
e. organic muck									
f. bedrock									
g. other									
12. ASA	5	0	1	0	1	0	0		
13. Gravel Shape	2	2	2	2	2	2	2		
14. Streambank Vegetation									
a. percentage	100	100	100	70/30	100	100	100		
b. type	B	B	B	B	B	B	B		
15. Average Depth (cm)	12	15	45	25	25	25	30		
16. Beaver Activity	6	6	6	6	6	6	6		
17. Potential Barrier	--	--	--	--	--	--	--		
18. Aquatic Vegetation									
a. type	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3		
b. density	1	1	1	1	1	1	1		
19. Sampling	--	--	--	--	--	--	--		
20. Rearing Area	30	40	20	20	25	15	15		
21. Comments									

Section 10: The gradient and substrate size increase as the reach changes.

Section 11: A heavy debris load is providing some pool area for rearing area, but the substrate is primarily boulders and there is little ASA. A small amount of braiding is present.

Section 13: The right, upper bank is steep and unstable with blowdown present.

Section 14: Braiding and channeling are present in Sections 14 & 15. A small seep enters from the right bank.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 16: The survey is discontinued at the end of the section. There has been no barrier, but the stream is primarily large, round boulders, and the gradient is increasing. There is little rearing and no ASA.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area G ADF&G No. 107-10-20 Date 6/18/84

1. Reach	1	1	1	1	1	1	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	150	100	100	100	100	100	100	100	100
4. Gradient	1.5	2	2	2	2.5	3	4	4	5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	11	7.2	12.6	9	8.2	3.9	11.6	11.7	7.8
b. water	11	6.5	8.6	9	7.2	2.9	2.6	4	4.8
c. special character	--	--	---	--	1	1	--	--	--
7. Water Type % SS	20	30	30	40	30	20	20	20	10
SF	10	20	20	35	55	70	75	75	85
DS	70	50	50	25	15	10	5	5	5
DF									
8. Undercut Banks (m) left	70	50	50	60	40	20	10	15	0
right	70	50	40	60	40	15	5	5	0
9. Debris Cover % small	1	5	3	5	5	3	0	0	0
large	1	10	8	12	10	5	4	2	2
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders						10	60	69	68
b. cobble					30	40	30	20	20
c. gravel	10	30	5	30	40	35	5	1	1
d. sand	90	70	95	70	30	15	5	5	1
e. organic muck									
f. bedrock								5	10
g. other									
12. ASA	1	15	1	20	25	30	0	0	0
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	30/70	100	100	100	100
b. type	B	B	B	B	C/B	B	B	B	B
15. Average Depth (cm)	30	40	55	50	50	25	17	10	12
16. Beaver Activity	7	7	7	7	7	5	5	5	5
17. Potential Barrier	--	--	--	--	--	--	--	--	--
18. Aquatic Vegetation									
a. type	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3	1,2,3
b. density	1	1	1	2	2	1	1	1	2/3
19. Sampling	--	--	--	--	--	--	--	--	--
20. Rearing Area	90	65	90	65	30	25	20	20	15

21. Comments

Section 1: Area G has an estimated flow of .3m³/sec. and temperature and pH of 9°C and 7 respectively. The substrate is primarily sand, and there is little riffle area or ASA. The rearing habitat is excellent quality. A small tributary enters from the right bank. No ASA is present, but a heavy debris load provides good cover for rearing in the tributary.

Section 2: Blue clay is observed along the left bank.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: The ASA is not good quality because the gravel is packed in sand.

Section 5: A 200 m. long channel that rejoins the main stem in Section 7 runs parallel to the stream to the left.

Section 6: The ASA is good quality. Braiding is present.

Section 7: The substrate size begins to enlarge, and boulders become the predominant substrate material. There is little ASA, and the rearing habitat decreases in amount and quality also.

Section 8: A heavy algae and periphyton growth is present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area G ADF&G No. 107-10-20 Date 6/18/84

1. Reach	3								
2. Section	10								
3. Section Length (m)	100								
4. Gradient	5								
5. Water Quality	3								
6. Water Width a. channel	6.6	6.8							
b. water	6.2	3.9							
c. special character	--								
7. Water Type % SS	10								
SF	85								
DS	5								
DF									
8. Undercut Banks (m) left	0								
right	10								
9. Debris Cover % small	0								
large	1								
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders	68								
b. cobble	29								
c. gravel	1								
d. sand	1								
e. organic muck									
f. bedrock	1								
g. other									
12. ASA	0								
13. Gravel Shape	2								
14. Streambank Vegetation									
a. percentage	100								
b. type	B								
15. Average Depth (cm)	10								
16. Beaver Activity	5								
17. Potential Barrier	--								
18. Aquatic Vegetation									
a. type	1,2,3								
b. density	1								
19. Sampling	--								
20. Rearing Area	10								
21. Comments									

Section 10: The survey was discontinued. The stream forks into two equal channels. The boulder size and the gradient are increasing. The left channel has a stretch of blue clay along the left bank. A large debris dam was observed 150 m. above the end of the survey.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area H ADF&G No. 107-10-20 Date 6/18/84

1. Reach	1	1	2	2	2	2			
2. Section	1	2	3	4	5	6			
3. Section Length (m)	100	100	100	100	100	100			
4. Gradient	1.5	2	3	4	5	7			
5. Water Quality	1	1	1	1	1	1			
6. Water Width a. channel	3	5.3	8	9	4.6	7.2	4.1		
b. water	3	3.4	8	9	3.9	5	4.1		
c. special character	--	--	--	--	--	--	--		
7. Water Type % SS	10	25	25	15	10	10			
SF	40	60	60	70	80	80			
DS	50	15	15	15	10	10			
DF									
8. Undercut Banks (m) left	70	40	60	50	40	30			
right	60	40	60	40	40	30			
9. Debris Cover % small	0	2	2	3	2	2			
large	6	10	12	13	15	15			
10. Riparian Vegetation %	10	15	20	25	25	25			
11. Substrate %:									
a. boulders				15	25	50			
b. cobble			35	50	50	40			
c. gravel	30	40	35	25	20	5			
d. sand	70	60	30	10	5	5			
e. organic muck									
f. bedrock									
g. other									
12. ASA	15	35	20	15	1	1			
13. Gravel Shape	1,2	1	1	2	2	1,2			
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100			
b. type	B	B	B	B	B	B			
15. Average Depth (cm)	45	8	17	35	10	20			
16. Beaver Activity	7	7	7	5	5	5			
17. Potential Barrier	--	--	--	--	--	--			
18. Aquatic Vegetation									
a. type	3	3	1,3	1,3	1,3	1,3			
b. density	3	3	2	2	1	1			
19. Sampling	--	--	--	--	--	--			
20. Rearing Area	50	30	40	35	20	15			
21. Comments									

Section 2: The ASA is good quality with excellent water flow. An adequate debris load provides enough cover and pools for good rearing also. The flow was estimated at .35m³/sec., and the temperature and pH were 9°C and 7 respectively.

Section 3: The substrate starts to get larger and more compact lowering the quality of the ASA. Fontinalis is present in Sections 3 and 4.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 5: The stream velocity and number of boulders is increasing.
Periphyton is heavy.

Section 6: The survey is discontinued. The gradient is increasing steadily,
and the fisheries habitat is decreasing rapidly. Little or no ASA
and minimal rearing habitat are present.

FISH SAMPLING FORM

ADF&G No. 107-10-20 Date 6/17/84 Stream Name Hofstad Cr.
Survey Area B H₂O Temp. 9.0°C Bait Braunschweiger

Trap No.	Time Set	Time Pulled	Species	Comment
#1	0910	1330	0	Sect. 3
#2	1015	1320	1 SS	Sect. 6
#3	1135	1205	1 DV	Sect. 15

FISH SAMPLING FORM

ADF&G No. 107-10-20 Date 6/17/84 Stream Name Hofstad Cr.
Survey Area C H₂O Temp. 9.5°C Bait Braunschweiger

Trap No.	Time Set	Time Pulled	Species	Comment
#1	1410	1620	0	Sect. 2
#2	1435	1625	0	Sect. 3
#3	0945	1045	SS 60 mm	500 m up tributary in Section 5 9/3/84

FISH SAMPLING FORM

ADF&G No. 107-10-20 Date 8/24/84 Stream Name Hofstad Cr.
 Survey Area Area D H₂O Temp. 12°C Bait Braunschweiger

Trap No.	Time Set	Time Pulled	Species	Comment
#1	1020	1050	Ø	Sect. 16

FISH SAMPLING FORM

ADF&G No. 107-10-20 Date 9/4/84 Stream Name Hofstad Creek
 Survey Area E H₂O Temp. 11.5° Bait Braunschweiger

Trap No.	Time Set	Time Pulled	Species	Comment
	1330	1400	DV - 100 mm CT - 95, 105 mm	Two miles above Hofstad Lake

FISH SAMPLING FORM

ADF&G No. 107-10-20 Date 6/19/84 Stream Name Hofstad Creek
 Survey Area Area F
Second Inlet H₂O Temp. 9.0 Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0800	0820	2 CT	Section 1
2	0920	0945	0	Section 8

107-10-20
PEAK ESCAPEMENT RECORD

DATE	PINK	CHUM	OTHER SPECIES	REMARKS
1962				None seen
8/7/63	6			
8/25/64	5,000			
8/19/65	2,000			
8/24/66	1,500			
8/21/67	450			
8/13/68	9			
8/20/69	9			
8/20/70	500			
9/12/70		1,200		
8/30/71	15,500			
8/8/72		400		
8/30/72	9,000			
8/17/73	1,000			
8/28/74	10,000	1,000		
8/18/75		300		
9/9/75	5,000			
9/20/76	15,500			
8/19/77	11,000			
8/3/78	80			
8/30/79	4,080	10		
8/21/80		30		
9/17/80	11,100			
8/25/81	4,800			
9/19/81		2		
9/14/82	6,704			

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-8 2. Historical Fish _____

Part II.

1. Stream Name Vixen Inlet #4 3. ADF&G Catalogue No. _____

3. USGS Map No. Craig D-1 4. Legal Location R87E, T70S, S-23

5. Latitude and Longitude 55°47'17", 132° 2' 6. Agency Unit 05

7. Aerial Photo No. 0026, 1273, 223, 9-12-73, 02190 8. Mgmt Area K29-720

9. Estimated Flow .2m³/sec 10. Flow Stage 3

11. Land Use a. present none observed b. historical Possible trap line

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 8.5°C

15. pH 6.5 16. Intertidal Zone _____ a. Gradient 3

b. Bottom type 1. fines 5 2. gravel/small cobble 25

3. large cobble/boulders/bedrock 70

c. ASA poor

d. Schooling only in Vixen Inlet

e. Shellfish potential no evidence of any shellfish

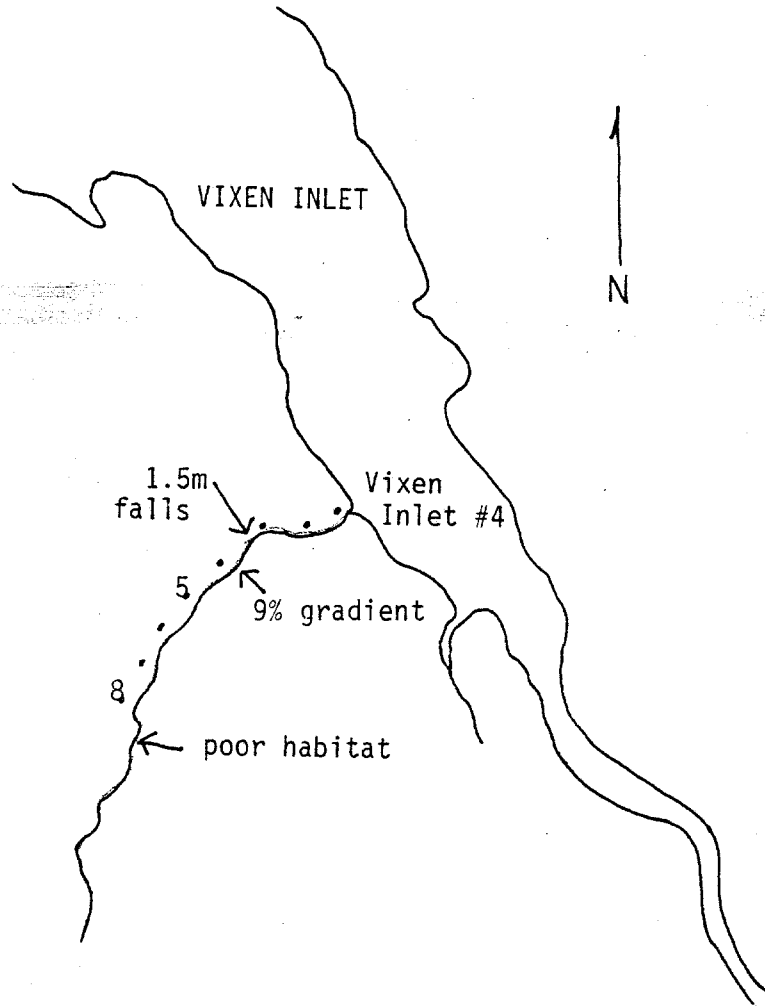
f. Anchorage fair, an extensive tidal flat is present

17. Comments

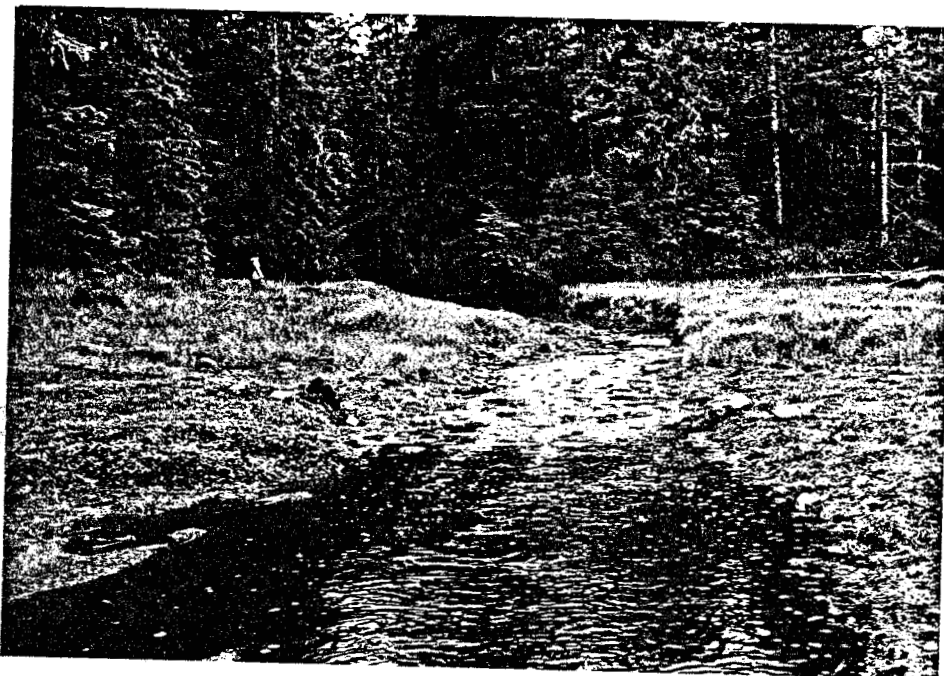
The ITZ substrate is compact and is covered with a dense growth of filamentous algae. Vixen Inlet #4 has only a small amount of poor quality ASA. The rearing habitat is also minimal, due to the steep gradient and swift nature at the stream, and is continued for the most part to plunge pools. A single fleeting rearing fish was observed in Section 1 and positive identification could not be made. A probable 1.5 m. barrier falls is present in Section 3. The stream's gradient continued to be fairly steep throughout the survey and little fisheries potential was observed. A reconnaissance when spawning salmon are in the area would be necessary to fully determine if the stream deserves anadromous classification.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 6/16/84 21. Time 1330-1530



Vixen Inlet #4



1. ITZ: Substrate covered with heavy filamentous algae.



2. Typical poor habitat in Section.

Vixen Inlet #4



3. Potential barrier in Section 3.



4. Section 8: Poor habitat at the end of the survey.

Vixen Inlet #4

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	5.5	1	5.5					
2	100	2.3	1	2.3					
3	100	2.4	0	0					
4	100	3.4	0	0					
5	100	2.0	1	2.0					
6	100	2.5	0	0					
7	100	2.0	0	0					
8	100	3.4	0	0					
Total ASA				9.8m ²					
Available ASA below the barrier				7.8m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Vixen Inlet #4 ADF&G No. _____ Date 6/16/84

1. Reach	1	1	1	1	2	2	2	2
2. Section	1	2	3	4	5	6	7	8
3. Section Length (m)	100	100	100	100	100	100	100	100
4. Gradient	7	7	9	9	8	7	7	8
5. Water Quality	3	3	3	3	3	3	3	3
6. Water Width a. channel	5.5	2.3	2.4	3.6	2	2.5	2	3.4
b. water	5.5	2.3	2.4	3.4	2	2.5	2	3.4
c. special character	-	-	-	-	-	-	1	-
7. Water Type % SS	10	10	10	10	15	15	10	10
SF	85	80	80	85	80	80	85	90
DS	5	10	10	5	5	5	5	
DF								
8. Undercut Banks (m) left	10	0	0	0	0	10	5	0
right	20	0	0	0	0	10	5	0
9. Debris Cover % small	1	2	1	0	1	2	2	1
large	3	4	2	1	2	3	5	3
10. Riparian Vegetation %	50	50	50	60	40	60	60	40
11. Substrate %:								
a. boulders	40	54	49	38	39	70	70	80
b. cobble	30	30	15	1	20	20	20	15
c. gravel	20	10	5	1	10	10	10	5
d. sand	10	1	1		1			
e. organic muck								
f. bedrock		5	30	60	30			
g. other								
12. ASA	1	1	0	0	1	0	0	0
13. Gravel Shape	1	1,2	2	2	2	2	2	2
14. Streambank Vegetation								
a. percentage	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B
15. Average Depth (cm)	7.5	15	20	10	7.5	13	15	10
16. Beaver Activity	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	2	-	-	-	-	-
18. Aquatic Vegetation								
a. type	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
b. density	2	2	3	2	2	2	2	2
19. Sampling	Y	-	-	-	-	-	-	-
20. Rearing Area	15	10	5	5	20	10	10	10
21. Comments								

Section 1: The substrate is compact and does not provide good quality ASA. A single rearing fish was observed. Positive identification could not be made. The rather steep gradient does not allow much rearing habitat to be available. The rearing area is mainly limited to plunge pool areas.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: Airstep falls with a 1.5 m. vertical rise and no pool is present and is a probable barrier.

Section 5: The boulders size increases and there is little fisheries habitat available.

Section 7: A small amount of braiding is present.

Section 8: The survey discontinued. There is minimal ASA or rearing habitat and no rearing fish have been observed since Section 1.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/16/84 Stream Name Vixen Inlet #4

Survey Area A H₂O Temp. 8.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1345	1520	1CT	Section 1

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-8 2. Historical Fish

Part II.

1. Stream Name Vixen Inlet #5 2. ADF&G Catalog No.

3. USGS Map No. Craig D-1 4. Legal Location R87E, T70S, S-14

5. Latitude and Longitude 55°48', 132°4'25" 6. Agency Unit 05

7. Aerial Photo No. 0028, 1273, 223, 9-12-73, 02190 8. MGMT Area K29-720

9. Estimated Flow .3m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 9°C

15. pH 6 16. Intertidal Zone a. Gradient 2

b. Bottom type 1. fines 1 2. gravel/small cobble 89

3. large cobble/boulders/bedrock 10

c. ASA poor

d. Schooling a small pool is present in the upper ITZ.

e. Shellfish potential evidence of clams, cockles, and crab

f. Anchorage good in Vixen Inlet

17. Comments

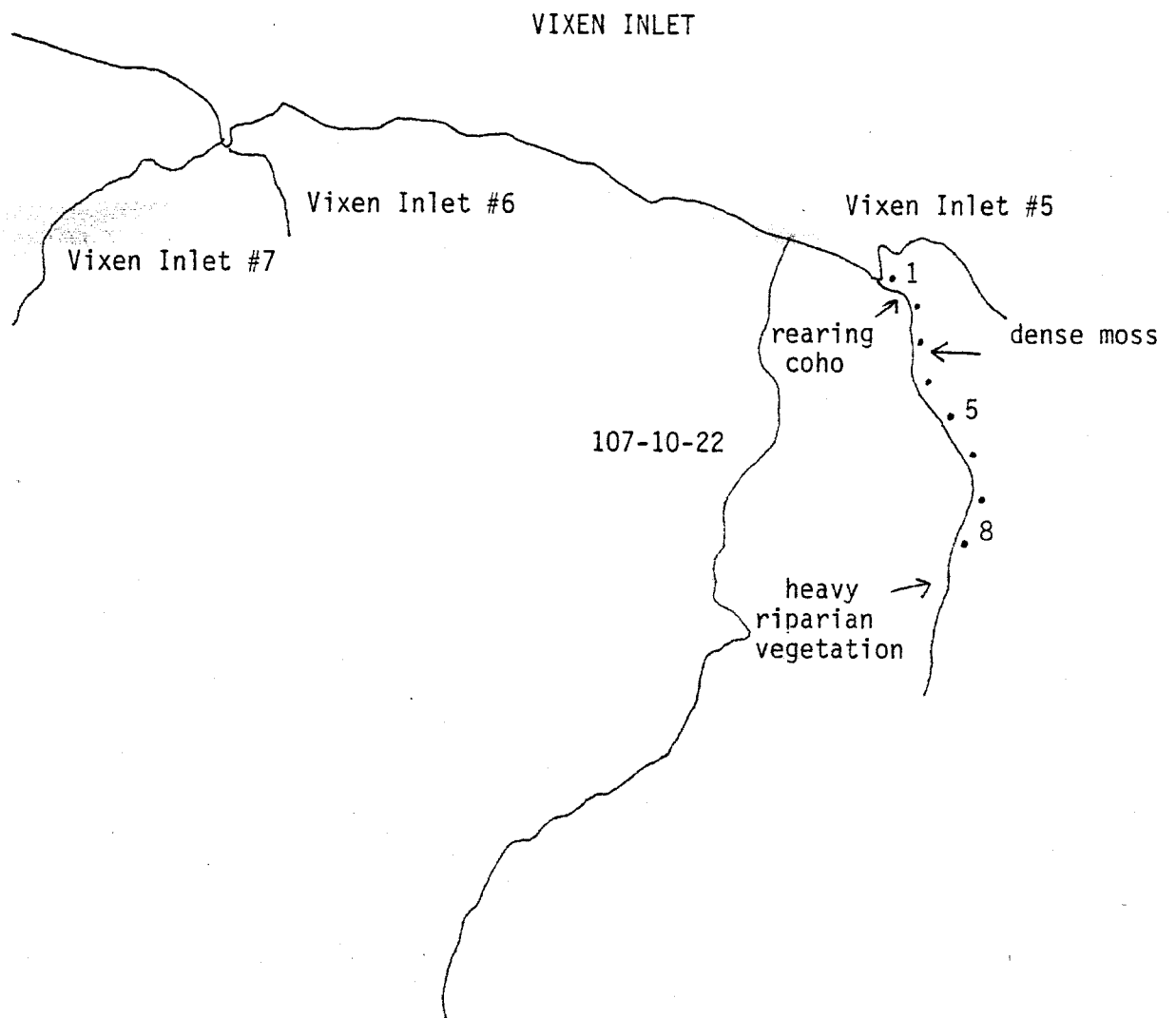
The substrate in the ITZ is covered predominately with a dense growth of filamentous algae and there are only patches of good ASA even though the substrate size is suitable for spawning gravel.

Vixen Inlet #5 is not currently classified as an anadromous stream, but probably should be. Rearing coho were observed in the lower reach of the stream and there is ASA present. The ASA is not good quality due to the presence of a heavy silt load. There is fairly good rearing habitat in the lower reach also, with the presence of large debris, undercut banks and overhanging vegetation.

The gradient increases in Section 3 and the substrate is predominately mossy boulders and large cobble. There is little ASA and the rearing habitat declines in quality also. The stream is predominately shallow and fast.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 6/16/84 21. Time 1130-1330



Vixen Inlet #5



1. ITZ: Substrate covered with heavy filamentous algae.



2. Habitat at the end of Section 1.

Vixen Inlet #5



3. Section 2: Typical habitat in upper reach.

Vixen Inlet #5

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Lenght (m)	Width (m)	ASA %	ASA Total
1	100	3.1	15	46.5					
2	100	2.7	5	13.5					
3	100	2.9	1	2.9					
4	100	2	1	2					
5	100	2	0	0					
6	100	2.2	5	11					
7	100	1.9	0	0					
8	100	2.7	1	2.7					

Total ASA

78.6m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Vixen Inlet #5 ADF&G No. _____ Date 6/16/84

1. Reach	1	1	2	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8
3. Section Length (m)	100	100	100	100	100	100	100	100
4. Gradient	3	3	5	6	6	6	5	6
5. Water Quality	4	4	4	4	4	4	4	4
6. Water Width a. channel	3.1	2.7	2.9	2	2	2.2	1.9	2.7
b. water	3.1	2.7	2.9	2	2	2.2	1.9	2.7
c. special character	-	-	-	-	-	-	-	-
7. Water Type % SS	60	50	30	20	20	20	15	10
SF	35	40	60	70	80	80	80	80
DS	5	10	10	10			5	10
DF								
8. Undercut Banks (m) left	20	30	50	50	30	40	50	40
right	10	30	40	50	30	40	50	40
9. Debris Cover % small	3	2	2	1	1	1	1	3
large	5	4	2	3	2	1	2	5
10. Riparian Vegetation %	10	75	75	75	75	75	75	75
11. Substrate %:								
a. boulders	5	40	40	59	55	40	50	50
b. cobble	45	25	30	30	40	30	35	35
c. gravel	45	25	25	10	5	30	15	15
d. sand	5	10	5	1				
e. organic muck								
f. bedrock								
g. other								
12. ASA	15	5	1	1	0	5	0	1
13. Gravel Shape	1,2	2	2	2	2	2	2	2
14. Streambank Vegetation								
a. percentage	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B
15. Average Depth (cm)	11	17	8	17	8	12	15	25
16. Beaver Activity	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	2	-
18. Aquatic Vegetation								
a. type	1,3,4	1,3,4	1,3,4	1,3,4	1,3,4	1,3,4	1,3,4	1,3,4
b. density	2	2	2	2	2	2	2	2
19. Sampling	Y	-	Y	-	-	-	-	-
20. Rearing Area	35	35	35	25	20	30	20	20
21. Comments								

Section 1: The substrate is silty. Rearing coho were observed with regularity. Grass is growing in the middle of the stream.

Section 2: The substrate gets more compact. The quality of the ASA decreases due to the compactness of the substrate and its heavy moss covering. Fontinalis is present.

Section 3: The gradient begins to increase. Fontinalis becomes abundant. No rearing fish were observed beyond Section 3. The substrate is predominately boulders

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3, continued: and large cobble and there is little ASA. There is little debris and the rearing habitat is not high quality. The stream's habitat remains relatively constant through Section 8.

Section 7: A 1 m. potential debris falls barrier is observed.

Section 8: The survey was discontinued at the end of the Section. The stream is getting small and no rearing fish had been observed for 500 m. The substrate still predominately moss covered boulders.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/16/84 Stream Name Vixen Inlet #5
 Survey Area A H₂O Temp. 9.0 Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1205	1610	Ø	Section 1
2	1225	1615	Ø	Section 3

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-8 2. Historical Fish CT,DV,SS,CS,PS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 107-10-22

3. USGS Map No. Craig D-1 4. Legal Location R87E,T70S,S-14

5. Latitude and Longitude 55°47'50",132°02" 6. Agency Unit 05

7. Aerial Photo No. 0027,1273,22,9-12-73,02190 8. MGMT Area K29-720

9. Estimated Flow 2 m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 8.5°C

15. pH 7 16. Intertidal Zone _____ a. Gradient 2.5

b. Bottom type 1. fines 5 2. gravel/small cobble 30

3. large cobble/boulders/bedrock 65

c. ASA poor-large substrate and dense filamentous algae cover

d. Schooling only in Vixen Inlet

e. Shellfish potential evidence of crab, clams, and cockles

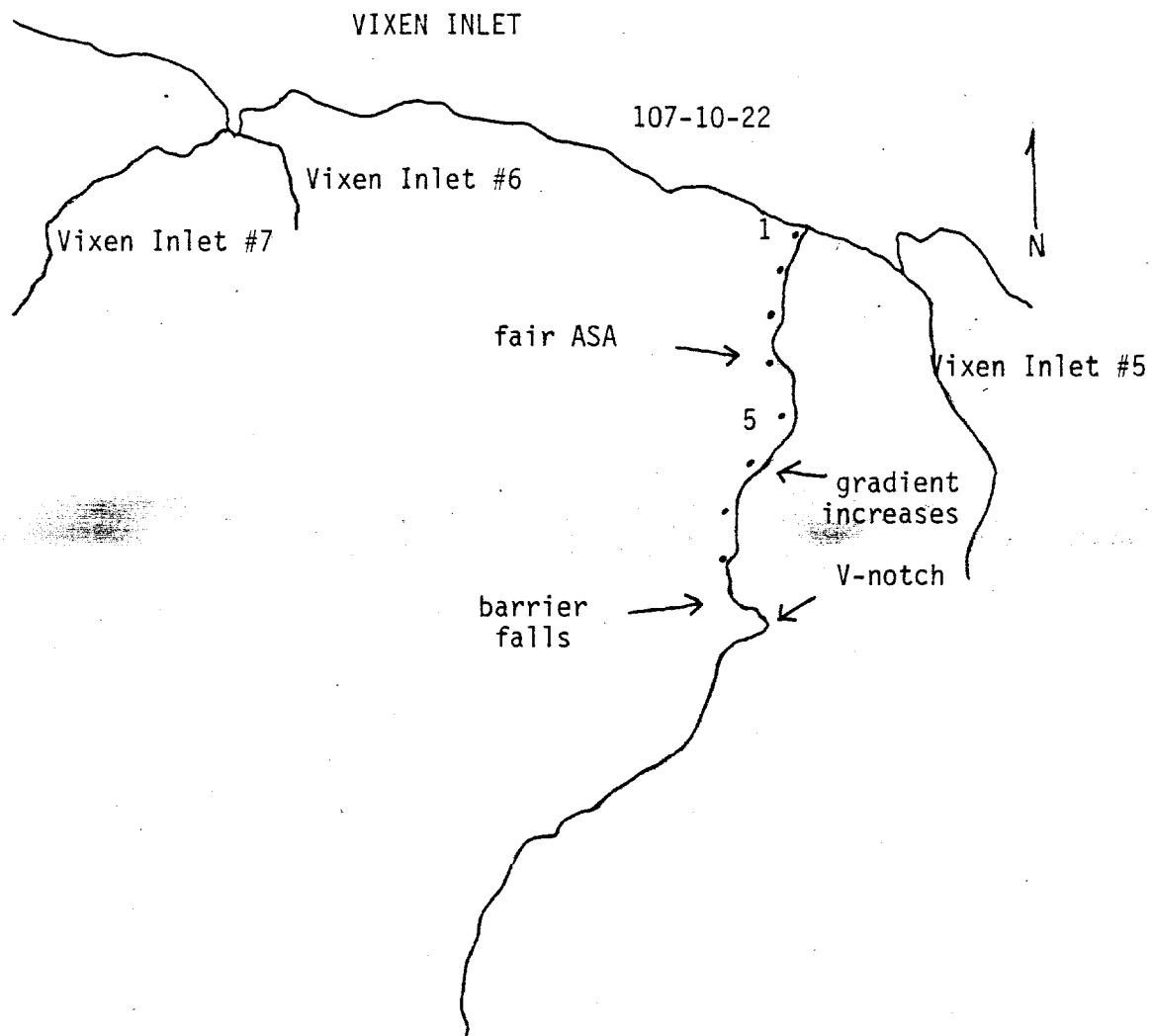
f. Anchorage good at mouth

17. Comments

107-10-22 is a swift stream that is limited by its large substrate and lack of rearing habitat. The best fisheries habitat is present in Sections 1 through 4. Rearing coho were observed infrequently as the stream lacks debris cover, undercut banks, and pool areas. The best ASA was observed in a braided area of Section 4. Above Section 4 the stream's gradient and substrate size increase. A series of barriers start in Section 7. Above the end of the survey in Section 8, the fisheries potential does not appear to improve.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 6/16/84 21. Time 0800-1115



107-10-22



1. ITZ: The substrate is covered by dense filamentous algae.



2. Typical swift nature of stream in Section 1.

107-10-22



3. Series of bedrock barriers in Section 8.

107-10-22

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	9.8	5	49					
2	100	7.1	1	7.1					
3	100	5.8	1	5.8					
4	100	4.5	15	67.5					
5	100	11	1	11					
6	100	5.5	1	5.5					
7	100	4.4	1	4.4					
8	100	6.6	0	0					
Total ASA				150.3m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-22 Date 6/16/84

1. Reach	1	1	1	1	2	2	2	2
2. Section	1	2	3	4	5	6	7	8
3. Section Length (m)	100	100	100	100	100	100	100	100
4. Gradient	3.5	6	4	5	5	8	10	16
5. Water Quality	3	3	3	3	3	3	3	3
6. Water Width a. channel	9.8	7.1	5.8	6	11	5.5	4.4	6.6
b. water	9.8	7.1	5.8	4.5	11	5.5	4.4	6.6
c. special character	3	-	-	1	-	-	-	-
7. Water Type % SS	10	5	10	10	5	5	5	
SF	90	70	70	75	75	75	75	70
DS				5	5			
DF		25	20	10	20	20	20	25
8. Undercut Banks (m) left	5	0	5	10	5	0	0	0
right	10	0	5	10	5	0	0	0
9. Debris Cover % small	1	0	0	2	1	0	0	0
large	5	1	1	2	5	5	7	3
10. Riparian Vegetation %	10	10	10	10	10	10	5	5
11. Substrate %:								
a. boulders	20	35	45	45	54	54	38	30
b. cobble	60	30	40	40	40	34	10	
c. gravel	10	1	5	10	5	1	1	
d. sand	5	1		5	1	1	1	
e. organic muck								
f. bedrock	5	33	10			10	50	70
g. other								
12. ASA	5	1	1	15	1	1	1	0
13. Gravel Shape	2	2	2	2	2	2	2	2
14. Streambank Vegetation								
a. percentage	10/90	100	100	100	100	100	100	100
b. type	A/B	B	B	B	B	B	B	B
15. Average Depth (cm)	14	17	30	30	15	23	60	23
16. Beaver Activity	5	5	5	7	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	2	2
18. Aquatic Vegetation								
a. type	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
b. density	2	2	3	3	3	3	3	3
19. Sampling	Y	-	-	Y	-	-	-	-
20. Rearing Area	10	10	10	20	10	10	10	10

21. Comments

Section 1: A 3.5 m. wide channel is to the left at the start of the Section. The substrate is large and rather compact making the ASA poor quality. There is little rearing habitat available either due to the swift nature of the stream and there being little debris or pool areas.

Section 2: Two high velocity bedrock stretches are present, but neither one was believed to be a barrier.

Section 3: The ASA is poor quality. It is found only in patches, is compact and often in very swift water.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: The ASA is poor quality. It is found only in patches, is compact and often in very swift water.

Section 4: Rearing coho were observed infrequently in Sections 1 through 4. Some braiding within the channel is present. The best ASA observed was present in this area.

Section 5: The gradient and substrate size increase.

Section 7: A bedrock chute with swift water is present at the end of Section 6 and the start of Section 7. A possible barrier is made by back to back 1 m. and 2. m. falls. A 25 m. stretch of swift whitewater is present at the end of the Section.

Section 8: The survey was discontinued at the end of the Section. A series of bedrock falls start at the end of the Section and continue for another 50 m. The single largest vertical rise is only 3 m., but there is a stretch of shallow high velocity whitewater leading up to the falls.

Above the falls, the stream continues in a steep V-notch. The substrate is predominately bedrock and provides minimal ASA or rearing habitat.

FISH SAMPLING FORM

AUF&G No. 107-10-22 Date 6/16/84 Stream Name

Survey Area A H₂O Temp. 8.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0850	1130	1-SS	Section 1
2	0930	1110	Ø	Section 4

PEAK ESCAPEMENT RECORD

107-10-22

[illegible]

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Vixen Inlet #6 2. ADF&G Catalog No. _____

3. USGS Map No. Craig D-1 4. Legal Location R87E,T70S S-15

5. Latitude and Longitude 55°48', 132° 2' 6. Agency Unit 05

7. Aerial Photo No. 0027 1273, 22 9-12-73, 02190 8. MGMT Area K29-720

9. Estimated Flow .3 m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access _____ 14. Stream Temperature 8°C

15. pH 5 16. Intertidal Zone _____ a. Gradient 2.5

b. Bottom type 1. fines 10 2. gravel/small cobble 70

3. large cobble/boulders/bedrock 20

c. ASA poor-90% of substrate covered by filamentous algae

d. Schooling only in Vixen Inlet

e. Shellfish potential a few clams and cockles observed

f. Anchorage good at mouth

17. Comments

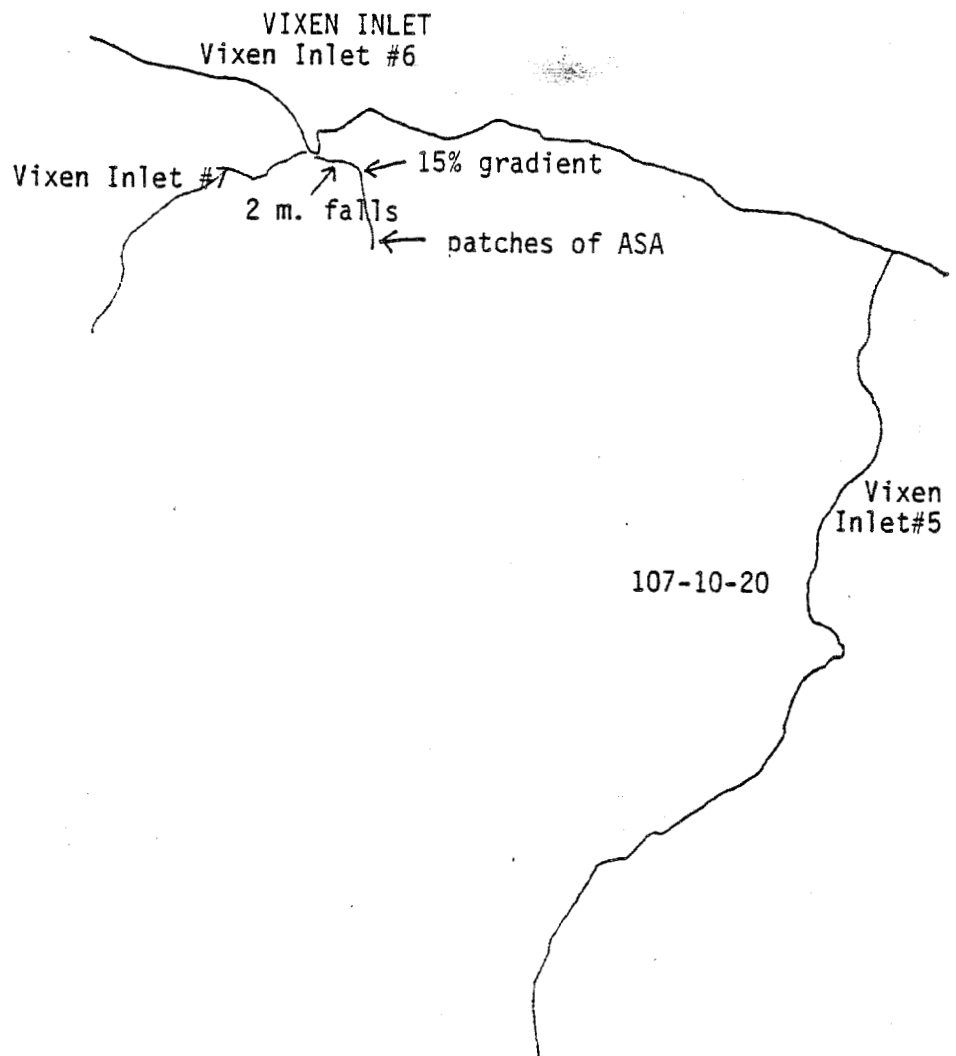
ITZ is shared with Vixen Inlet #7.

Vixen Inlet #6 has little potential for anadromous fish. It has a gradient of 10 to 15% and a series of potential bedrock barriers for the first 300 m. beyond the ITZ. Limited ASA is found in the first 20 m. only. A 2 m. bedrock falls with no pool present was found 85 m. beyond the ITZ.

The gradient decreases to 1% after the first 300 m. A heavy moss growth covers the substrate and only patches of ASA are present. There is fair quality rearing area, but no rearing fish were observed. The stream is 1 to 1.5 m. in width and was only about 13 cm deep at flood stage.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 5/24/84 -195- 21. Time 0800-0900



Vixen Inlet #6



1. Habitat above the bedrock falls.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-7 2. Historical Fish

Part II.

1. Stream Name Vixen Inlet #7 2. ADF&G Catalog No.

3. USGS Map No. Craig D-1 4. Legal Location R87E, T70S, S-15

5. Latitude and Longitude 55°48', 132°0', 2' 6. Agency Unit 05

7. Aerial Photo No. 0027, 1273, 22, 02190 8. MGMT Area K29-720

9. Estimated Flow .45 m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 8°

15. pH 6 16. Intertidal Zone a. Gradient 2.5

b. Bottom type 1. fines 10 2. gravel/small cobble 70

3. large cobble/boulders/bedrock 20

c. ASA poor - 90% of substrate covered by filamentous algae

d. Schooling only in Vixen Inlet

e. Shellfish potential a few clams and cockles observed

f. Anchorage good at mouth

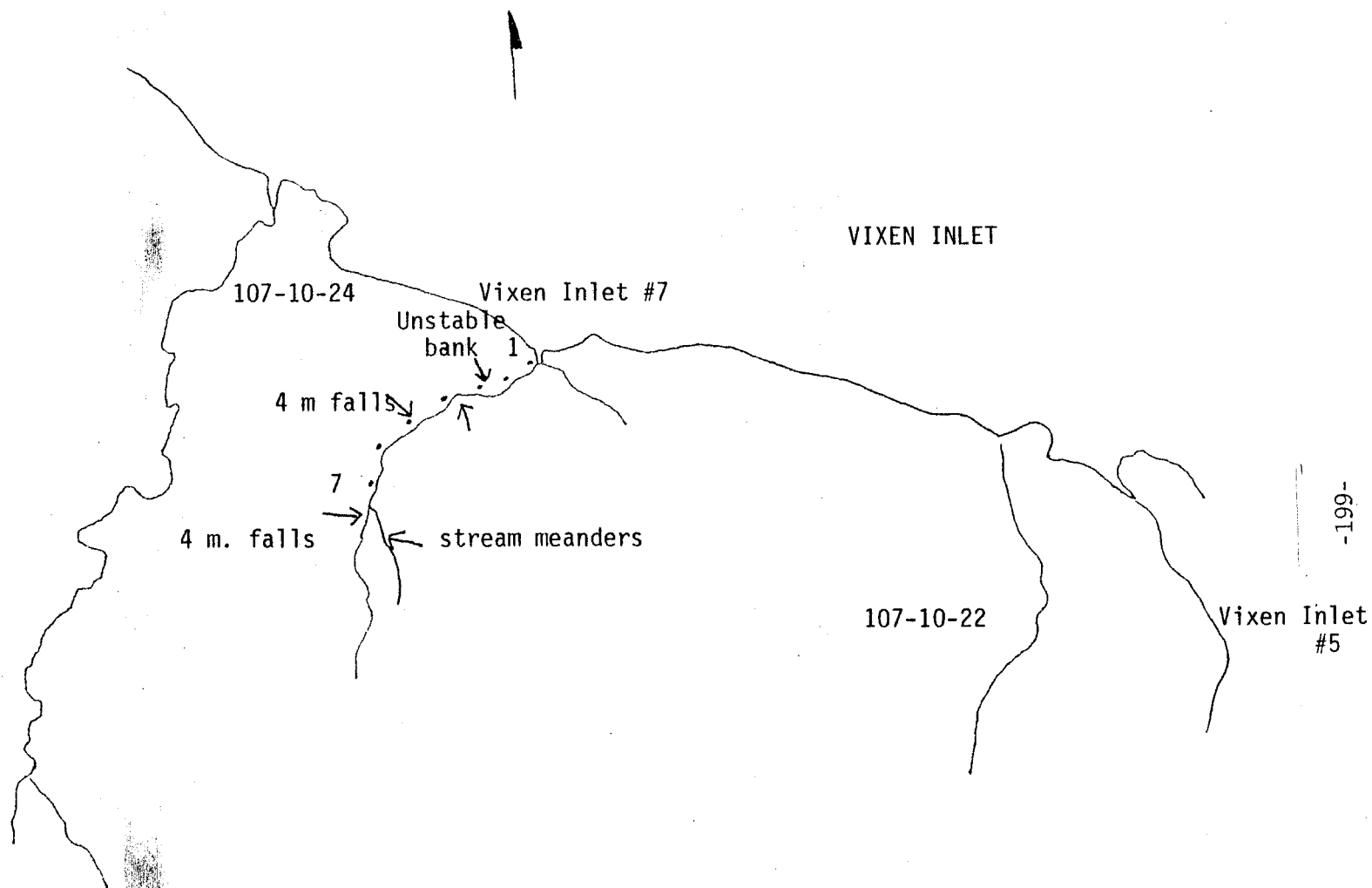
17. Comments

Figures on amount of rearing area present were not kept. The ITZ is shared with Vixen Inlet #6.

Vixen Inlet #7 contains limited ASA in the ITZ and first 300 m. only. Thick filamentous algae covers the ITZ substrate. A potential debris/bedrock barrier is present 50m into Section 1. Two more definite barrier falls are present in Section 4 and 5. The substrate contains a large amount of bedrock throughout the survey. The upper banks are steep and unstable through most of the survey. The survey was discontinued when the stream split in half and began meandering through muskeg terrain. No rearing fish were observed or trapped.

18. Investigators Burns/Cariello 19. Weather 1

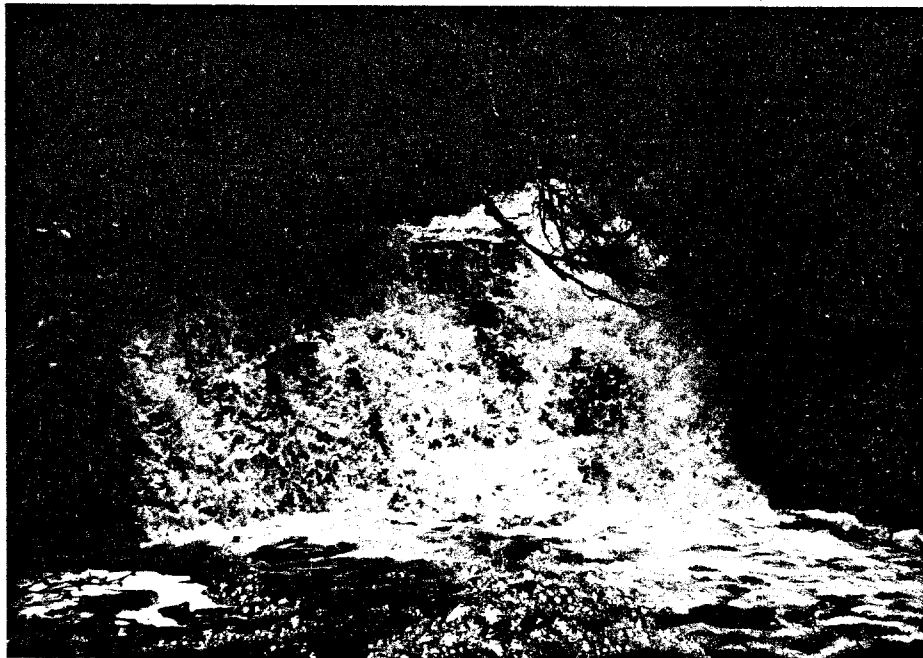
20. Date 5/24/84 21. Time 0900-1300



Vixen Inlet # 7

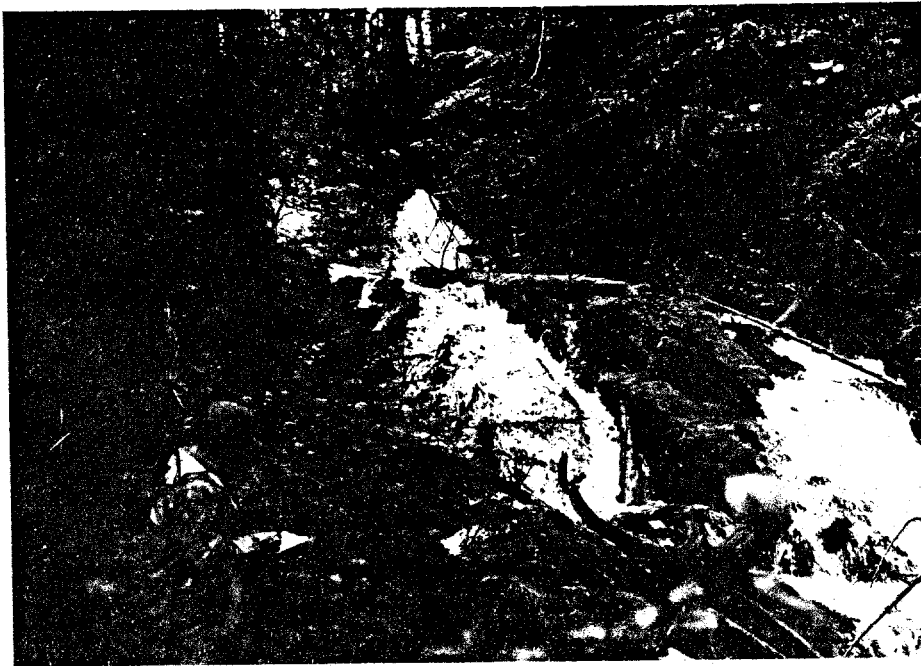


1. Habitat in Section 1. Possible debris barrier.

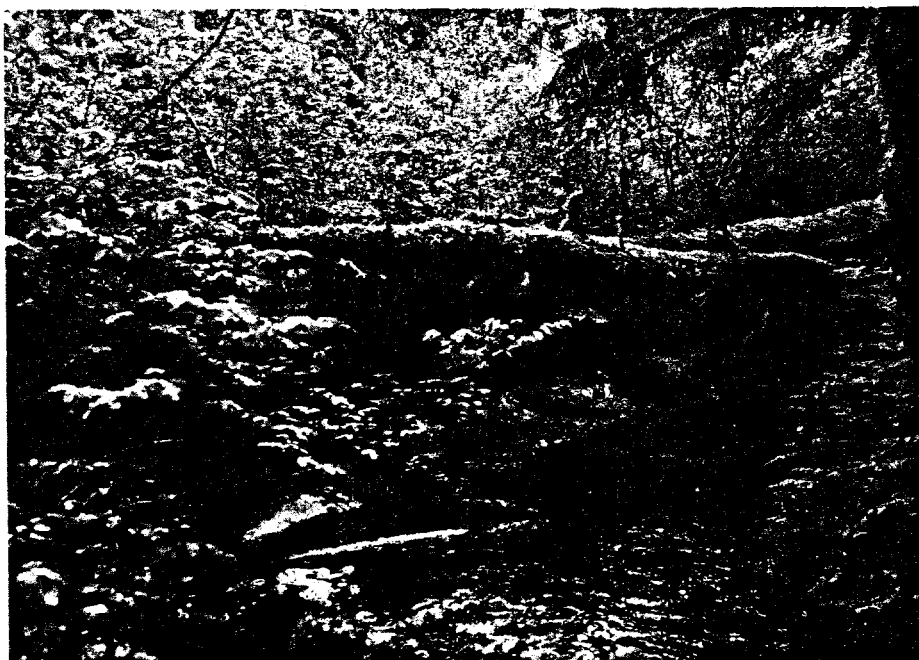


2. 4 m. falls in Section 4.

Vixen Inlet #7



3. Barrier falls in Section 5.



4. Typical habitat at the end of survey.

Vixen Inlet #7

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	5	10	50					
2	100	2	10	20					
3	100	3.2	10	32					
4	100	4.1	1	4.1					
5	100	3.5	1	3.5					
6	100	2.5	0	0					
7	100	2.5	0	0					

Total ASA 109.6m²
available ASA below the barrier 50 m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Vixen Inlet #7 ADF&G No. _____ Date 5/24/84

1. Reach	1	1	1	1	1	1	1		
2. Section	1	2	3	4	5	6	7		
3. Section Length (m)	100	100	100	100	100	100	100		
4. Gradient	7	12	10	17	13	8	15		
5. Water Quality	4	4	4	4	4	4	4		
6. Water Width a. channel	15	3	3.2	4.1	3.5	2.5	2.5		
b. water	5	2	3.2	4.1	3.5	2.5	2.5		
c. special character	-	-	-	-	-	-	-		
7. Water Type % SS	5	5	5	5	5	5	5		
SF	93	85	90	90	85	95	95		
DS	1	5	3	2	5				
DF	1	5	2	3	5				
8. Undercut Banks (m) left	1	1	1	30	5	1	20		
right	1	1	10	3	5	30	25		
9. Debris Cover % small	5	5	4	1	2	1	1		
large	25	25	20	15	15	5	3		
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders	30	30	30	20	10	10	35		
b. cobble	20	30	40	30	30	5	10		
c. gravel	10	10	10	10	10	5	10		
d. sand									
e. organic muck									
f. bedrock	40	30	20	40	50	80	45		
g. other									
12. ASA	10	10	10	1	1	0	0		
13. Gravel Shape	1,2	1,2	1,2	1,2	1,2	1,2	1,2		
14. Streambank Vegetation									
a. percentage	50/50	50/50	50/50	100	100	100	100		
b. type	B/D	B/D	B/D	B	B	B	B		
15. Average Depth (cm)	10	13	18	10	13	18	13		
16. Beaver Activity	5	5	5	5	5	5	5		
17. Potential Barrier	2,3	2	-	2	1,2	-	-		
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1		
b. density	2	2	2	2	2	2	2		
19. Sampling	-	-	-	-	-	-	-		
20. Rearing Area									
21. Comments									

Section 1: Blowdown was present on the unstable right upper bank at the start of the Section. A 3.5 m. barrier bedrock/debris falls with no pool present is midway through the Section. A heavy debris load is present. The stream is in a steep V-notch.
 Section 2: The right bank continues to be unstable with slides present. A 1.5 to 2 m. falls is present.
 Section 3: The right bank has two large slides present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: A 4.5 m. barrier falls with a gradient of 40% is present. A 1 m. deep pool is at the base of the falls.

Section 5: Another 4m falls with no pool present is near the end of the Section. A velocity chute is present at the top of the falls.

Section 6: The stream is a bedrock channel in this Section.

Section 7: The gradient decreases at the end of the Section and the stream splits into two equal forks. A 4 m. barrier falls is present 10 m. from the fork on the right stream. The right fork above the falls has muskeg on both upper banks. It meanders severely and skunk cabbage is growing in the stream in places.

Filamentous moss is heavy in areas. Debris is very heavy in places creating possible blocks. The stream width averages 2 m. No rearing fish were observed. The left fork is 1.5 m. in width with patches of good ASA present. There is adequate rearing area with some debris, undercut banks, and a large amount of overhanging vegetation. The gradient is 3%.

FISH SAMPLING FORM

ADF&G No. _____ Date 5/24/84 Stream Name Vixen Inlet #7
 Survey Area A H₂O Temp. 8°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1000	1100	Ø	Section 5
2	1150	1220	Ø	100 m above end of survey

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-18 2. Historical Fish SS,PS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 107-10-24

3. USGS Map No. Craig D-1 4. Legal Location R87E,T 70S,S-15

5. Latitude and Longitude 55°48'11", 132°3'53" 6. Agency Unit 05

7. Aerial Photo No. 0026-1873,100,9-14-73,02190 8. MGMT Area K29-720

9. Estimated Flow 1 m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical old logging close to beach

12. Temperature Sensitivity and/or origin 5.4

13. Access 2 14. Stream Temperature 6.5°

15. pH 7 16. Intertidal Zone _____ a. Gradient 2

b. Bottom type 1. fines 15 2. gravel/small cobble 70

3. large cobble/boulders/bedrock 15

c. ASA fair

d. Schooling only in saltwater

e. Shellfish potential a few cockles, and clams were observed

f. Anchorage good in Vixen Inlet

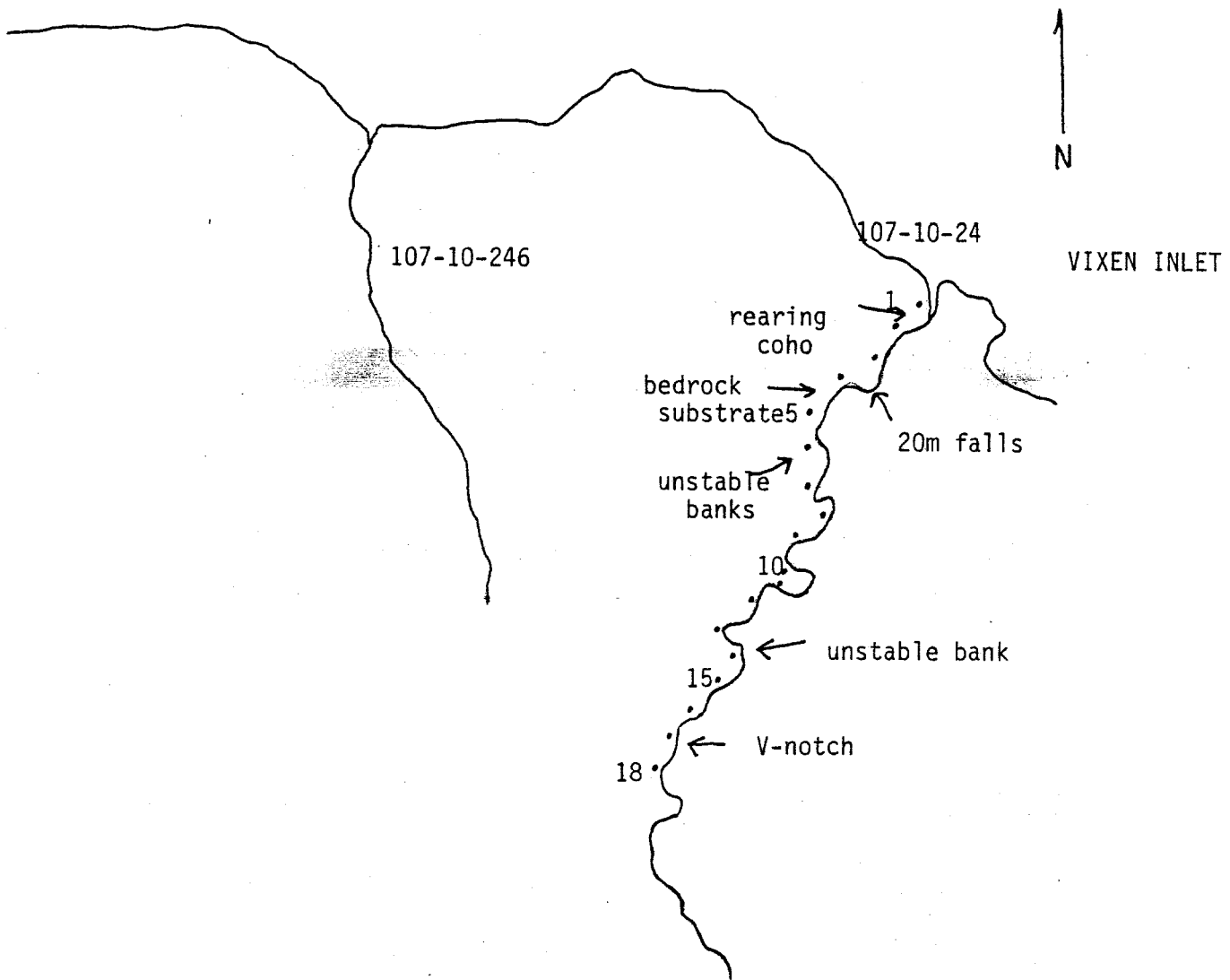
17. Comments

Most of the ITZ has a dense filamentous algae covering. A small stretch of good ASA was present at the upper end of the ITZ. Figures for amount of rearing area were not collected.

107-10-24 contains a 20 m. barrier falls about 250 m. beyond the ITZ. A fair amount of ASA is present in the first two Sections, but the substrate is predominately bedrock above the barrier falls and provides poor fisheries habitat. The water is uniformly shallow and swift above the falls, even in the undercut banks. There also is little debris or cover provided. Rearing coho were observed with regularity in the first two Sections. A heavy debris load and a good mix of pools and riffles provided excellent rearing habitat up to the falls.

18. Investigators Burns/Cariello 19. Weather 6

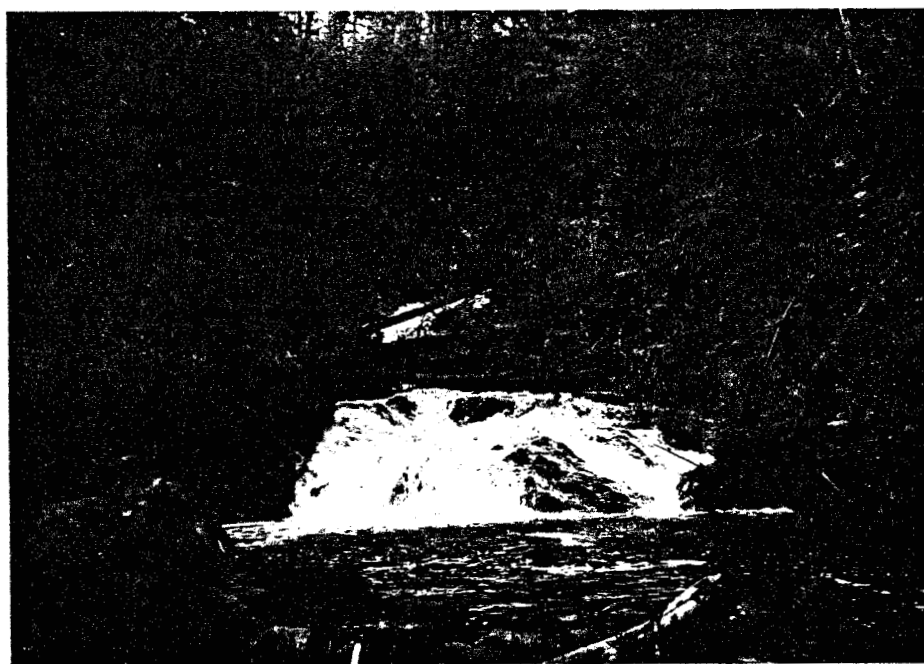
20. Date 5/25/84 21. Time 0800-1230



107-10-24



1. Poor ASA in ITZ.



2. Beginning of Section 3 with a barrier falls in the background.

107-10-24



3. Section 13: Typical habitat above the falls.



4. Habitat at the 350 ft. elevation.

107-10-24

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	12	50	600					
2	100	7	20	140					
3	100	11	0	0					
4	100	10	10	100					
5	100	9	0	0					
6	100	6.5	5	32.5					
7	100	10	10	100					
8	100	7	0	0					
9	100	8.5	0	0					
10	100	7.5	10	75					
11	100	7.5	5	37.5					
12	100	8.5	0	0					
13	100	5	5	25					
14	100	7	0	0					
15	100	7	0	0					
16	100	6	5	30					
17	100	7.5	0	0					
18	100	5.3	0	0					

Available ASA below the barrier 740 m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-24 Date 5/25/84

1. Reach	1	1	2	2	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1	5	18	9	6.5	3	3	4.5	10
5. Water Quality	1	1	1	1	1	1	1	1	1
6. Water Width a. channel	28	14	20	10	10	8	12	8	8.5
b. water	12	7	11	10	9	6.5	10	7	8.5
c. special character	-	1	1	-	-	-	-	-	-
7. Water Type % SS	20	20	5	10	10	10	10	10	5
SF	75	75	85	90	90	90	85	90	95
DS			5				5		
DF	5	5	5						
8. Undercut Banks (m) left	3	1	0	25	1	1	15	1	1
right	5	1	0	0	1	25	10	1	1
9. Debris Cover % small	2	2	0	0	0	1	1	1	0
large	15	20	1	5	8	10	8	3	1
10. Riparian Vegetation %	15	2	1	5	2	1	5	5	5
11. Substrate %:									
a. boulders	15	15	10	20	20	30	50		5
b. cobble	25	20		10	10	20	25		5
c. gravel	50	10		10	5	10	10		
d. sand		5							
e. organic muck									
f. bedrock	10	50	90	60	65	40	15	100	90
g. other									
12. ASA	50	20	0	10	0	5	10	0	0
13. Gravel Shape	1	1	2	1.2	1.2	1.2	1.2	-	1.2
14. Streambank Vegetation									
a. percentage	100	100	100	100	50/50	50/50	100	100	100
b. type	B	B	B	B	B/D	B/D	B	B	B
15. Average Depth (cm)	8	10	25	17	15	20	13	17	10
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	2	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3/2	3/1	3/1	1,3	1,3	1,3	1,3	1/3	1/3
b. density	1/2	1/3	1/3	2	2	2	2	1/3	1/3
19. Sampling	-	Y	-	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 1: Handlogging sign is visible on the left bank. Recent blowdown from the right bank is across the stream.

Section 2: Rearing coho were abundant in Sections 1 and 2. Excellent rearing habitat is provided by a heavy debris load and nice pool areas.

Section 3: A 20 m. barrier falls is present. A series of a couple 2.5 m falls are below the barrier falls. Large debris has collected between each falls. The upper banks are nearly vertical.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: The stream becomes uniformly shallow and swift over a bedrock substrate. Little rearing area or ASA is provided.

Section 5: The steep upper right bank is unstable in Sections 5 and 6. Slides and sloughing are present and pioneer vegetation such as alder and ferns are present.

Section 7: Although there are undercut banks in this Section, they do not provide good rearing habitat due to the presence of swift water. This condition was observed throughout the survey area. The large debris that is present also provides minimal rearing area due to the uniform shallow swift nature of the stream.

Section 8: The gradient increases in Sections 8 and 9.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-24 Date 5/25/84

1. Reach	2	2	3	3	3	3	3	4	4
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3.5	5	2.5	2.5	3	2	1.5	4	5
5. Water Quality	1	1	1	1	1	1	1	1	1
6. Water Width a. channel	7.5	7.5	9.5	9	7.5	7	12	7.5	6.3
b. water	7.5	7.5	8.5	5	7	7	6	7.5	6.3
c. special character	1	-	-	-	-	-	-	-	-
7. Water Type % SS	10	15	20	15	5	5	5	5	5
SF	90	85	75	85	95	95	94	94	90
DS			5				1	1	
DF									
8. Undercut Banks (m) left	30	1	15	25	15	10	1	3	0
right	30	5	40	10	15	5	25	2	0
9. Debris Cover % small	0	0	1	1	1	1	1	0	0
large	1	1	3	3	5	2	5	1	1
10. Riparian Vegetation %	3	5	10	1	2	2	10	3	3
11. Substrate %:									
a. boulders	15	30	40	50	10	35	30	40	40
b. cobble	25	15	15	15		10	20	10	10
c. gravel	10	5	10	10		5	10		
d. sand									
e. organic muck									
f. bedrock	50	50	35	25	90	50	40	50	50
g. other									
12. ASA	10	5	5	5	0	0	5	0	0
13. Gravel Shape	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	C	C	C	C	C	C	C	C	C
15. Average Depth (cm)	10	12	12	50	10	30	20	10	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1/3	1/3	1,3	1,3	1,3	3	3	3	1/3
b. density	1/3	2/3	3	3	3	3	3	3	2/3
19. Sampling	-	-	-	-	-	-	-	Y	-
20. Rearing Area									
21. Comments									

Section 10: The stream is braided for 30 m.

Section 12: A small trickle with a temperature of 7.5°C and a pH of 6 enters from the left bank midway through the Section. No rearing area or ASA is provided. The gradient decreases slightly and the quality of the rearing habitat improves. An increase in the amount of large debris present also helps improve the rearing habitat. No rearing fish were observed, however.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 14: The upper right bank is unstable at the end of the Section and a large slide has occurred recently.

Section 17: The gradient increases in this reach and the substrate becomes predominately bedrock and boulders. The stream enters a V-notch canyon.

Section 18: The survey was discontinued at the end of the Section. The topography appears to continue very steep. No ASA and little rearing habitat is present. A helicopter reconnaissance was done on 6/9/84. The stream was checked at the 350 foot elevation, approximately 1,200 m. upstream. The substrate was bedrock/boulders and there was little, if any, ASA. There was little rearing habitat either, due to the swift nature of the stream and little debris or cover being present. The gradient was 4% and the upper banks were very steep.

FISH SAMPLING FORM

ADF&G No. 107-10-24 Date 5/24/84 Stream Name _____

Survey Area A H₂O Temp. 6.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0830	1210	Ø	Section 2
2	1100	1130	CT-76mm	Section 17
3	1200	1215	Ø	1200 m. beyond end of survey 6/9/84

PEAK ESCAPEMENT RECORD

107-10-24

DATE	PINK	CHUM	OTHER SPECIES	REMARKS
1961				No fish observed
8/16/74		6		
8/29/76		550		
8/19/77		2,000		
8/22/78		1,500		
8/19/79		300		
8/19/80		200		
8/25/81		664	13	
8/16/82		300		

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-11 2. Historical Fish PS,SS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 107-10-246

3. USGS Map No. Craig D-1 4. Legal Location R87E,T 70S,S-9

5. Latitude and Longitude 55°48'30", 132°05'1" 6. Agency Unit 05

7. Aerial Photo No. 0026,1873,100,9-14-73,02190 8. MGMT Area K29-720

9. Estimated Flow .09 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 8°C

15. pH 6-6.5 16. Intertidal Zone 5 a. Gradient 5

b. Bottom type 1. fines 5 2. gravel/small cobble 25

3. large cobble/boulders/bedrock 70

c. ASA fair

d. Schooling only in Vixen Inlet

e. Shellfish potential evidence of clams, cockles and crab observed

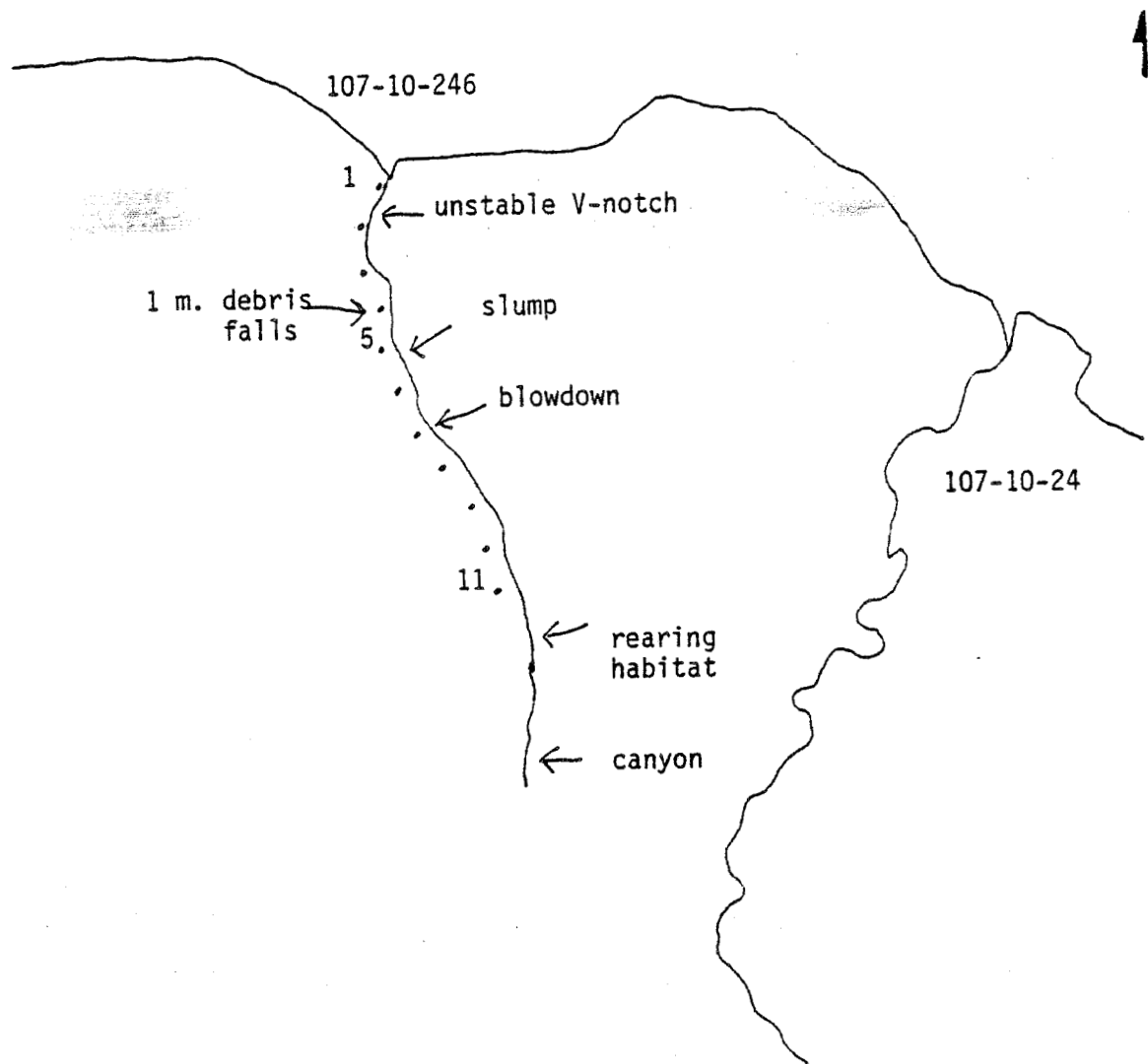
f. Anchorage fair for small skiff, unprotected

17. Comments

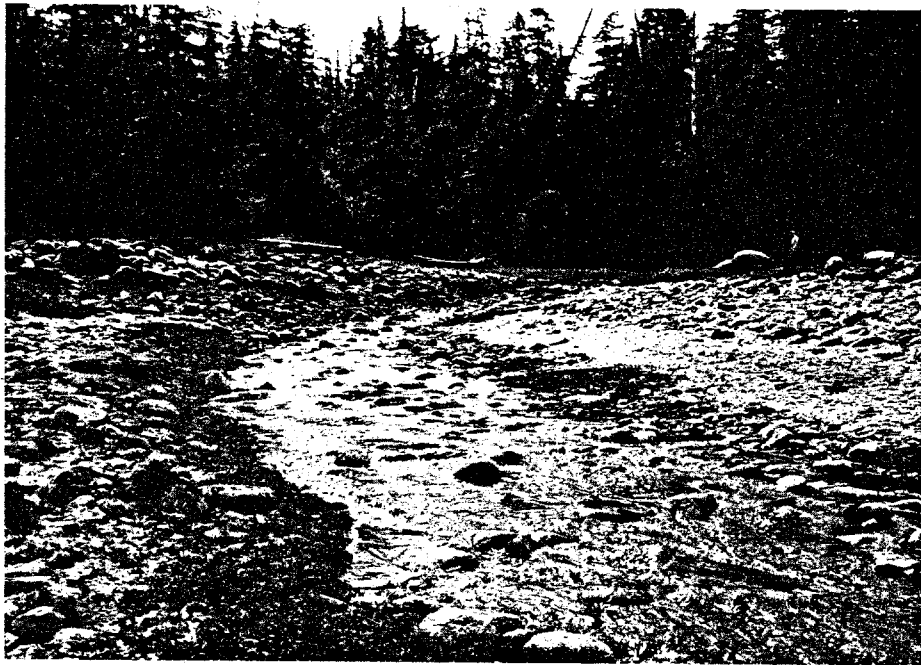
A small patch of fair quality ASA is present in the upper ITZ. No figures for rearing area were collected. Unstable banks were present the entire survey length. 107-10-246 entered a V-notch in Section 1 and continued in it until the end of Section 11. The upper banks showed signs of instability throughout the survey with blowdown and slumps present. There were frequent debris falls with vertical falls of around 1 m. Some may have been potential barriers at low water. The ASA was only fair quality. It was mostly cobble-sized and very flat. It was fairly loose, however, and was not silty. The water depth was quite shallow over some of the ASA and it would not be available at low water. There seemed to be good rearing habitat with overhanging riparian vegetation, a moderate abundance of debris

18. Investigators Burns/Cariello 19. Weather 6

20. Date 5/21/84 21. Time 1230-1645



107-10-246



1. Poor ASA in TIZ.



2. Unstable bank and slide in Section 5
Typical of reach 1.

107-10-246



3. Typical habitat at end of survey - Section 11.

107-10-246

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Lenght (m)	Width (m)	ASA %	ASA Total
1	100	3.8	20	76					
2	100	5.3	10	53					
3	100	2	5	10					
4	100	3.4	15	51					
5	100	2.7	5	13.5					
6	100	2.7	10	27					
7	100	3.6	5	18					
8	100	3	20	60					
9	100	2.1	15	31.5					
10	100	2.4	10	24					
11	100	1.5	5	7.5					
Total ASA				371.5m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-246 Date 5/21/84

1. Reach	1	1	1	1	1	1	1	1	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	5	6	7	7	8	12	8	8	8
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	6.5	5.5	2.5	4.7	5	2.7	4.6	3	2.1
b. water	3.8	5.3	2	3.4	2.7	2.7	3.6	2	2.1
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	45	40	40	35	25	35	30	30	40
SF	50	50	60	60	70	60	70	55	55
DS	5	10		5	5	5		5	5
DF									
8. Undercut Banks (m) left	10	15	0	5	5	0	10	15	10
right	5	10	5	5	10	5	10	10	5
9. Debris Cover % small	5	2	1	1	5	1	1	1	1
large	20	20	10	15	20	15	15	10	5
10. Riparian Vegetation %	15	5	10	20	20	20	30	20	40
11. Substrate %:									
a. boulders	15	30	30	25	20	20	35	35	40
b. cobble	35	20	25	25	55	55	40	40	40
c. gravel	35	15	5	10	5	5	5	5	5
d. sand	5	5							
e. organic muck									
f. bedrock	10	30	40	50	20	20	20	20	15
g. other									
12. ASA	20	10	5	15	5	10	5	20	15
13. Gravel Shape	1	1	1	1	1	1	1	1	1
14. Streambank Vegetation									
a. percentage	50/50	50/50	50/50	50/50	50/50	50/50	50/50	100	100
b. type	B/D	B/D	B/D	B/D	B/D	B/D	B/D	B	C
15. Average Depth (cm)	6	10	6	15	5	8	5	5	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	3	-	-	-	-	-			
18. Aquatic Vegetation									
a. type	1	1	1	1	1	1	1	1,2	1
b. density	3	3	3	3	3	3	3	3	3
19. Sampling	-	Y	-	-	Y	-	-	-	-
20. Rearing Area									
21. Comments									

Section 1: A soft weathered rock is prevalent in the bank and substrate. The bank is unstable where it was observed. A potential debris barrier was present at the end of the Section. The stream enters an unstable V-notch.

Section 2: The right upper bank has some blowdown and a slide present. The heavy debris load provides excellent rearing habitat with plunge pools present.

Section 4: Several 1 m. debris falls are present in this Section. The left upper bank has a small slide partially covered by young alder.

Section 5: A large slump is on the steep right. The cobble size is increasing.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 6: Several more 1 m. debris falls are present and provide pool areas for rearing.

Section 7: There is recent large blowdown across the stream from the S.E. direction.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-246 Date 5/21/84

1. Reach	2	2							
2. Section	10	11							
3. Section Length (m)	100	100							
4. Gradient	7	7							
5. Water Quality	3	3							
6. Water Width a. channel	2.5	3							
b. water	2.4	1.5							
c. special character	-	-							
7. Water Type % SS	40	40							
SF	55	55							
DS	5	5							
DF									
8. Undercut Banks (m) left	5	10							
right	5	10							
9. Debris Cover % small	1	1							
large	5	5							
10. Riparian Vegetation %	20	40							
11. Substrate %:									
a. boulders	45	85							
b. cobble	40	10							
c. gravel	5								
d. sand									
e. organic muck									
f. bedrock	10	5							
g. other									
12. ASA	10	5							
13. Gravel Shape	1	1							
14. Streambank Vegetation									
a. percentage	100	100							
b. type	C	C							
15. Average Depth (cm)	8	8							
16. Beaver Activity	5	5							
17. Potential Barrier	3	-							
18. Aquatic Vegetation									
a. type	1	1							
b. density	3	3							
19. Sampling	-	-							
20. Rearing Area									
21. Comments									

Section 10: A potential debris barrier at low flow is present.

Section 11: The survey is discontinued at the end of the Section. The upper banks flatten out and muskeg is apparent on both sides on the stream. The stream gradient decreases and excellent rearing habitat is provided with undercut banks, overhanging vegetation providing cover and a nice mix of pools and riffles present. No rearing fish were observed however. There are patches of ADA still present, but mossy boulders are the predominant substrate. Skunk cabbage is growing in the stream. The stream begins branching off into small feeder streams. The stream enters a V-notch about 300 m. upstream.

BASELINE AQUATIC SURVEY, continued

and a good mix of pools and riffles. No coho fry were observed however, and the few fish observed were believed to be trout. The fish observed were rearing fish in the 80-120 mm. size range.

The survey was discontinued when the amount of ASA declined and the stream became a meandering brook through muskeg. There was still some patches of ASA and good rearing, although no fish were observed. Moss was quite abundant on the boulders in the substrate and skunk cabbage was growing in the stream channel in places. Also the flow was decreasing as small feeders entered from the muskeg.

FISH SAMPLING FORM

ADF&G No. 107-10-246 Date 5/21/84 Stream Name Braunswager
 Survey Area A H₂O Temp. 8 8.5°C Bait

Trap No.	Time Set	Time Pulled	Species	Comment
1	1305	1630	Ø	Section 2
2	1340	1615	CT	Section 5
3	1515	1545	Ø	100 m. beyond end of survey

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-48, B 1-8, C 1-8 2. Historical Fish CT,DV,CS,SS,PS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 107-10-25

3. USGS Map No. Craig D-1 4. Legal Location R87E.T70S.S-18

5. Latitude and Longitude 55°47'26", 132°08'32" 6. Agency Unit 05

7. Aerial Photo No. 0025,1873,178,9-14-73,02190 8. MGMT Area 05

9. Estimated Flow .9 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 4.5

13. Access 2 14. Stream Temperature 6.50c

15. pH 7 16. Intertidal Zone _____ a. Gradient .5

b. Bottom type 1. fines 35 2. gravel/small cobble 60

3. large cobble/boulders/bedrock 5

c. ASA good - potential 200 m. of gravel available

d. Schooling A large schooling area is present in the ITZ.

e. Shellfish potential Evidence of cockles, Butter clams, and Dungeness crab

f. Anchorage good anchorage available in Vixen Harbor

17. Comments

Abundant deer and bear sign were observed. Rearing coho and possible CS fry were observed in the ITZ. A Peterson disc was found in the ITZ. The amount of rearing area was not collected during the survey. Signs of king and high water flows were available.

107-10-25 appears to be a productive stream. The best ASA is found in Sections 1 through 13 and Sections 25 through 35. Areas B and C contain fair amounts of lower quality ASA. PS bones were found on the banks throughout the survey area. The fisheries habitat decreases above Section 40 as the stream becomes a uniformly swift stream with a substrate of primarily boulders and little rearing habitat provided.

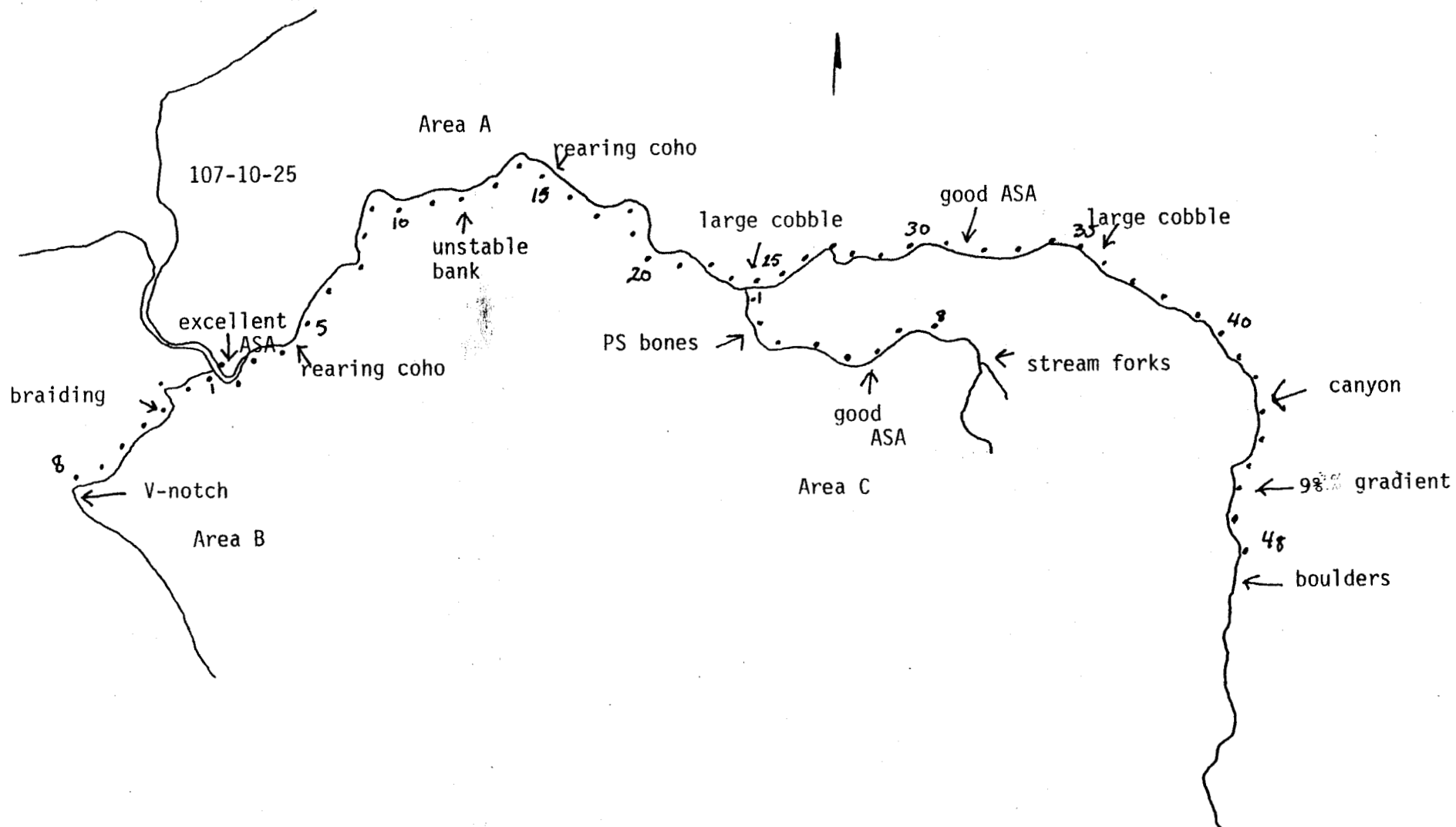
18. Investigators Burns/Cariello 19. Weather 3,1

20. Date 5/22 & 5/23/84 21. Time 0815-1700, 0800 - 1600

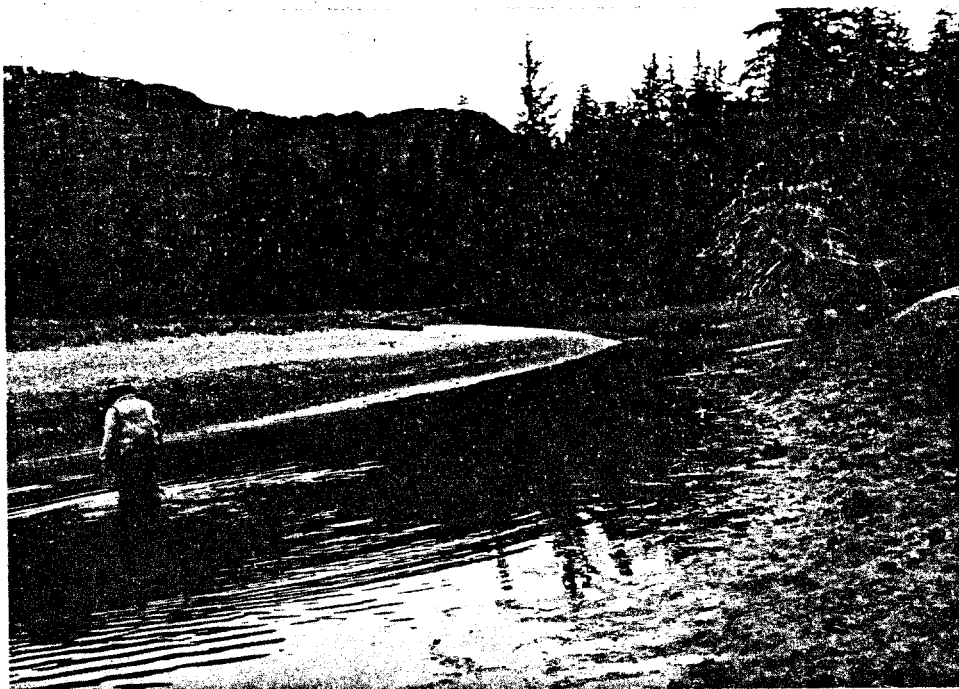
BASELINE AQUATIC SURVEY, continued

An adequate debris load contributes to provide excellent cover and a good mix of pools and riffles in Sections 4 through 21 of Area A. Rearing coho were abundant in this stretch. The incidence of rearing fish observations declined above Section 21 and became infrequent beyond Section 40.

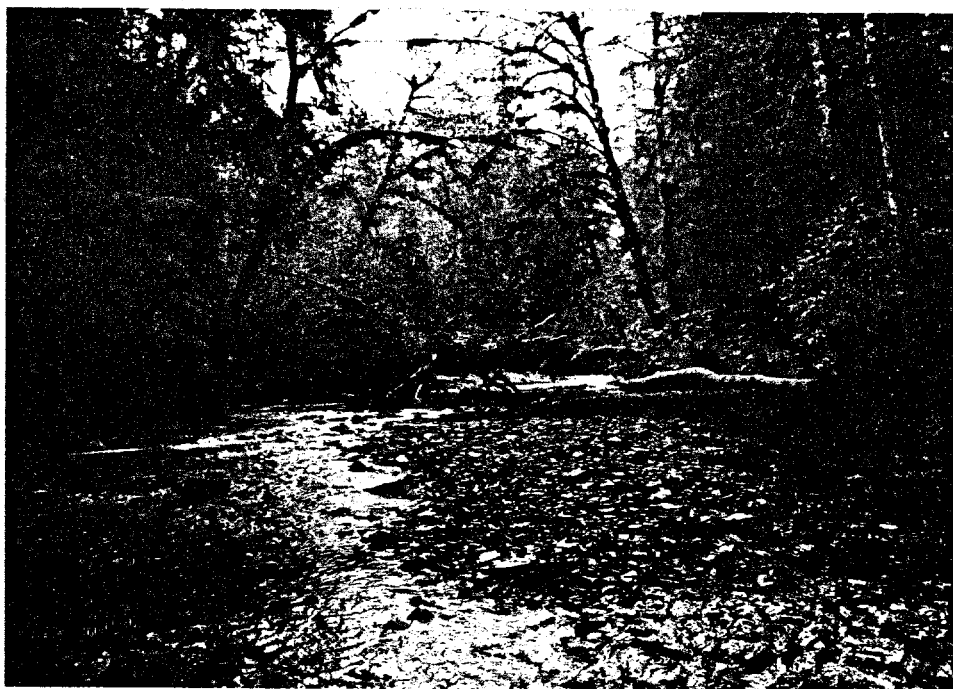
The mainstem upper bank indicated its instability in several places with recent slides.



107-10-25 Area A



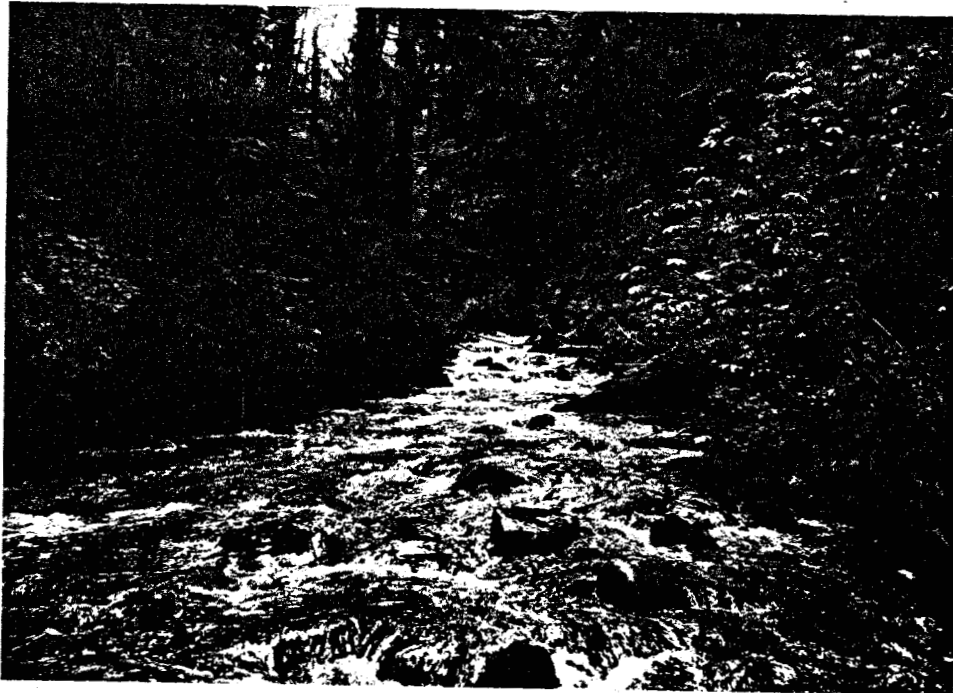
1. Lower ITZ.



2. Section 4: The riffles contain good ASA.



3. Downstream view of debris jam in Section 16.



4. Poor habitat at end of survey - Section 48.



5. Section 1: ASA substrate contains a heavy sand load.



6. Area C: Section 1: Typical habitat in Area C.

107-10-25

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	5.4	30	162					
2	100	8	90	720					
3	100	8	40	320					
4	100	12	70	840					
5	100	8	10	80					
6	100	6.4	70	448					
7	100	8	45	360					
8	100	9	60	540					
9	100	9	20	180					
10	100	5.2	50	260					
11	100	13	20	260					
12	100	6.2	40	248					
13	100	5.6	5	28					
14	100	9.4	0	0					
15	100	4.7	5	23.5					
16	100	6.6	5	33					
17	100	5.2	0	0					
18	100	8.2	0	0					
19	100	6.8	0	0					
20	100	5.2	0	0					
21	100	7.0	0	0					
22	100	8.2	1	8.2					
23	100	8.5	5	42.5					
24	100	6.0	5	30					
25	100	7.2	1	7.2					
26	100	5.5	5	27.5					
27	100	7.4	10	74					
28	100	8	5	40					
29	100	4.7	1	4.7					
30	100	5.4	5	27					
31	100	7.0	20	140					
32	100	8.7	30	261					
33	100	10	15	150					
34	100	4.1	15	61.5					
35	100	6	15	90					
36	100	5.8	1	5.8					
37	100	9	1	9					
38	100	5.5	1	5.5					
39	100	7	1	7					
40	100	6.1	5	30.5					
41	100	6.8	1	6.8					
42	100	6.2	0	0					
43	100	10.5	0	0					
44	100	8.4	1	8.4					
45	100	4.3	1	4.3					
46	100	5.2	1	5.2					
47	100	6.8	0	0					
48	100	10	0	0					

Total Area "A"

5,548.6m²

107-10-25

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Lenght (m)	Width (m)	ASA %	ASA Total
1	100	3.2	75	240					
2	100	3.7	50	185					
3	100	4.4	25	110					
4	100	3.5	15	52.5					
5	100	2.9	5	14.5					
6	100	2.1	20	42					
7	100	5.2	5	26					
8	100	3.2	0	0					

Total Area "B" 670m²

1	100	2.8	15	42
2	100	4.7	1	4.7
3	100	2.6	1	2.6
4	100	3.4	5	17
5	100	3.3	15	49.5
6	100	3.5	15	52.5
7	100	3.9	20	78
8	100	4.2	15	63

Total Area "C" 309.3m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 107-10-25 Date 5/22/84

1. Reach	1I	1I	1I	2	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1	1	1	1.5	2	2	2	2	2
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	16.8	13.5	11	14	12.5	11	16	9	9.2
b. water	5.4	8	8	12	8	6.4	8	9	9
c. special character	-	-	-	-	-	-	3	-	-
7. Water Type % SS	85	85	80	80	30	35	40	45	40
SF	15	15	10	15	60	50	45	55	50
DS			10	5	10	15	15	5	10
DF									
8. Undercut Banks (m) left	0	0	5	5	10	5	5	30	40
right	5	0	25	40	40	25	5	5	0
9. Debris Cover % small	0	0	0	0	1	1	1	1	1
large	0	0	0	2	10	8	3	3	5
10. Riparian Vegetation %	0	0	5	5	10	10	10	10	5
11. Substrate %:									
a. boulders			5	5	15	5	15	10	25
b. cobble		20	30	60	45	40	35	40	35
c. gravel	70	50	35	5	10	25	20	20	10
d. sand	30	30	30	30	30	30	30	30	30
e. organic muck									
f. bedrock									
g. other									
12. ASA	30	90	40	70	10	70	45	60	20
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	50/50	100	100	100	100	100	100
b. type	A	A	A/B	B	B	B	B	B	B
15. Average Depth (cm)	13	8	10	28	13	25	10	10	11
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3	3	3	3	3	3	3	3	3
b. density	2	1	1	1	3	3	3	3	3
19. Sampling	-	-	-	Y	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 1: The loose gravel and good water flow appear to provide excellent ASA, although there are fines present. The first 3 Sections could be influenced by high tides. There is no cover provided except at the very edge of the stream along the grassy banks. The stream is shallow, averaging only 10 cm. deep in the first three Sections.

Section 4: Many rearing coho were observed in the debris pools present. The rearing habitat is excellent quality with a heavy debris load and a good mix of pools and riffles.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 5: A heavy debris dam is present at the end of the Section, but is not a barrier.

Section 8: The ASA is declining in quality. The cobble substrate is getting larger and more compact, although there are stretches of good quality ASA still present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 107-10-25 Date 5/22/84

1. Reach	2	2	2	3	3	3	3	3	3
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	3	2.5	3	3	3	3	4	3
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	10.7	13	11	7.6	10	9.2	7.5	6.6	10.5
b. water	5.2	13	6.2	5.6	9.4	4.7	6.6	5.2	8.2
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	40	40	35	30	35	30	40	35	40
SF	50	50	60	65	65	65	50	60	55
DS	10	10	5	5		5	10	5	5
DF									
8. Undercut Banks (m) left	40	30	20	5	35	25	30	25	10
right	0	10	30	5	5	20	20	15	5
9. Debris Cover % small	1	1	1	1	1	1	2	1	1
large	3	8	3	2	3	5	8	5	3
10. Riparian Vegetation %	10	10	5	5	5	15	16	10	2
11. Substrate %:									
a. boulders	20	25	25	25	20	50	50	45	40
b. cobble	35	40	40	20	15	30	30	20	15
c. gravel	10	01	01	5	2	5	5		
d. sand	25	20	20	15	10	15	15	10	5
e. organic muck									
f. bedrock	10	5	5	30	53			25	40
g. other									
12. ASA	50	20	40	5	0	5	5	0	0
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	25	10	8	13	8	10	23	23	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1	1	1	1	1/3	1/3	1/3	1/3	1/3
b. density	3	3	3	3	3	3	3	3	3
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 10: Many rearing coho were observed.

Section 12: The right upper bank shows signs of instability and there is a recent slide into the stream.

Section 13: The right upper bank has slid off again exposing shale-like bedrock 50 m. into each Section. The ASA has decreased due to presence of bedrock in the stream bottom.

Section 14: A Peterson disc tag was recovered.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 15: Many rearing coho were observed. The size of the substrate has increased to the small boulders/large cobble category.

Section 16: A holding pool is formed below a large debris dam that could impede fish passage. Many PS bones were observed on the bank indicating that bears have utilized this area to their advantage.

Section 17: Rearing coho were observed in good numbers.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 107-10-25 Date 5/22/84 - 5/23/84

1. Reach	3	3	3	3	3	3	3	3	3
2. Section	19	20	21	22	23	24	25	26	27
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	3	3	3	3	3	3	3	3
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	6.8	7.6	7	13	11.5	12.5	8.6	10	8.8
b. water	6.8	5.2	7	8.2	8.5	6	7.2	5.5	7.4
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	40	35	30	30	40	35	35	30	35
SF	55	60	65	65	55	60	65	70	65
DS	5	5	5	5	5	5			
DF									
8. Undercut Banks (m) left	5	5	5	5	0	15	10	15	5
right	0	5	0	5	5	5	10	15	5
9. Debris Cover % small	2	2	1	1	1	1	1	0	0
large	15	10	5	7	7	3	2	2	1
10. Riparian Vegetation %	2	5	5	10	5	5	10	5	10
11. Substrate %:									
a. boulders	50	10	20	25	25	35	30	35	35
b. cobble	25	5	10	15	15	50	40	35	40
c. gravel	5	5	5	5	5	5	5	5	5
d. sand	5	5	5	10	10	5	10	10	10
e. organic muck									
f. bedrock	15	75	60	45	45	5	15	15	10
g. other									
12. ASA	0	0	1	5	5	1	7	5	10
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	22	18	9	13	13	10	15	15	15
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
b. density	2	2	2	2	2	2	2	2	2
19. Sampling	-	-	-	-	Y	-	-	-	-
20. Rearing Area									
21. Comments									

Section 21: Good numbers of rearing coho are observed in the few good rearing areas provided. There is not much debris and the substrate is predominately bedrock. A small trickle tributary enters from a V-notch on the right bank.

Section 23: A tributary surveyed as Area C enters from the right bank at the end of the Section.

Section 24: The survey of Sections 24 to 48 was done 5/23/84. The ASA is not good quality due to the large size of the substrate. There are stretches, however that might be suitable for use.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 107-10-25 Date 5/23/84

1. Reach	3	3	3	3	3	3	3	3	3
2. Section	28	29	30	31	32	33	34	35	36
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	4	3	3	2.5	2.5	3	3	2.5	3
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	8	6.4	7.6	7.1	9.7	10	12.3	7.6	7.9
b. water	8	4.7	5.4	7	8.7	10	4.1	6	5.8
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	35	40	40	40	45	40	40	45	35
SF	65	60	60	50	50	50	50	50	60
DS				10	5	10	10	5	5
DF									
8. Undercut Banks (m) left	0	5	0	15	20	10	40	20	30
right	0	5	0	10	25	25	10	30	30
9. Debris Cover % small	1	0	0	1	2	2	2	1	0
large	2	2	2	5	10	15	10	8	2
10. Riparian Vegetation %	10	10	10	10	10	20	10	15	15
11. Substrate %:									
a. boulders	35	30	20	20				5	10
b. cobble	35	30	25	25	35	35	40	50	60
c. gravel	5	5	5	15	20	20	15	15	10
d. sand	10	10	20	20	45	45	45	30	20
e. organic muck									
f. bedrock	15	25	35	15					
g. other									
12. ASA	5	1	5	20	30	15	15	15	1
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	11	13	15	13	13	8	28	31	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
b. density	2	2	2	2	2	2	2	2	2
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 28: There is a slight increase in the gradient due to a small bedrock falls. Filamentous moss is heavy in places.

Section 30: The ASA contains a large amount of sand. There is good water flow through the substrate however.

Section 31: Many PS bones were found on the bank near a good stretch of ASA. Two old snags across the stream provide good pool area and cover for rearing habitat. A 1 m. falls over a log is present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 32: Large old debris crosses the stream at the start of the Section and provides several plunge pools.

Section 33: A seep enters from the left bank. The upper banks flatten out.

Section 34: The substrate begins getting larger after several Sections of good ASA. Compact large cobble becomes the predominant substrate material as the ASA declines in quality once again. There are several deep pools present.

Section 36: The recent blowdown on the right bank midway through the Section appears to be caused by an undercut bank.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 107-10-25 Date 5/23/84

1. Reach	3	3	3	4	4	4	4	4	4
2. Section	37	38	39	40	41	42	43	44	45
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	4	4	4	4.5	5	6	6	6	10
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	9.1	7.6	7.1	13.4	10	6.2	10.5	8.4	4.5
b. water	9	5.5	7	6.1	6.8	6.2	10.5	8.4	4.3
c. special character	-	-	-	1	-	-	-	1	1
7. Water Type % SS	35	40	30	15	5	5	5		
SF	65	50	60	80	90	95	90	90	90
DS		10	10						
DF				5	5	5	5	10	10
8. Undercut Banks (m) left	15	40	30	40	50	50	40	40	25
right	30	40	30	40	50	50	40	40	25
9. Debris Cover % small	0	2	2	2	2	3	3	1	1
large	1	8	15	8	8	5	10	5	8
10. Riparian Vegetation %	15	20	20	25	30	20	20	10	10
11. Substrate %:									
a. boulders	30	50	50	35	60	60	60	60	59
b. cobble	35	40	40	30	30	30	30	30	30
c. gravel	10	5	5	10	5	5	5	5	5
d. sand	20	5	5	25	5	5	5	5	5
e. organic muck									
f. bedrock									
g. other									
12. ASA	1	1	1	5	1	0	0	1	1
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	10	11	8	8	15	13	10	10	10
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
b. density	2	2	2	2	2	2	2	2	2
19. Sampling	-	-	Y	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 39: Rearing coho were observed. A large spruce windfall provides a good pool 20 m. into the Section. A small tributary enters from the right bank. It is 1 m. in width and the depth varies between 7 and 10 cm. There is minimal good quality ASA present, but many PS bones are found on its banks. There is some rearing potential with undercut banks and overhanging riparian vegetation present, but no rearing fish were observed. The water temperature and pH were 8°C and 7.5 respectively. The tributary goes completely under the bank within 100 m. of the mainstem and skunk cabbage is growing in the middle of the channel in places.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 40: The stream is braided for about 50 m. for the Section. The left channel contains most of the water flow, but the right channel contains the best ASA. The gradient and stream velocity are increasing.

Section 41: Large old debris is present.

Section 42: The upper right bank has some large spruce blowdown present.

Section 44: The end of Section 44 and the start of Section 45 are braided. The stream enters from a canyon with steep upper banks on both sides.

Section 45: The stream makes a big bend. A few PS bones were observed on the bank.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 107-10-25 Date 5/23/84

1. Reach	4	4	4						
2. Section	46	47	48						
3. Section Length (m)	100	100	100						
4. Gradient	9	9	9						
5. Water Quality	3	3	3						
6. Water Width a. channel	5.2	11	10.5						
b. water	5.2	6.8	10						
c. special character	1	-	-						
7. Water Type % SS									
SF	90	90	85						
DS									
DF	10	10	15						
3. Undercut Banks (m) left	35	10	10						
right	10	20	10						
9. Debris Cover % small	0	1	0						
large	2	3	2						
10. Riparian Vegetation %	10	5	5						
11. Substrate %:									
a. boulders	59	69	78						
b. cobble	30	30	20						
c. gravel	5	5	1						
d. sand	5	5	1						
e. organic muck									
f. bedrock	1								
g. other									
12. ASA	1	0	0						
13. Gravel Shape	2	2	2						
14. Streambank Vegetation									
a. percentage	100	100	100						
b. type	B	B	B						
15. Average Depth (cm)	28	14	13						
16. Beaver Activity	5	5	5						
17. Potential Barrier	-	-	-						
18. Aquatic Vegetation									
a. type	1/3	1/3	1/3						
b. density	2	2	2						
19. Sampling	-	-	-						
20. Rearing Area									

21. Comments

Section 46: A small amount of braiding is present in Sections 45 and 46
 Section 48: A small steep tributary enters from the left bank at the end of the Section. The survey was discontinued at this point. An occasional PS bone pile was still observed on the banks and there have been no barriers, so salmon definitely do reach this far upstream. The ASA however, has deteriorated and is poor quality. There is not much good quality rearing area available either due to a lack of debris and the swift nature of the stream. Rearing fish are observed very infrequently. A reconnaissance by helicopter about 800 m. further upstream showed substrate consisted of a large proportion of boulder and cobble with traces of ASA found between boulders. Gradient varied between 6-9%. There was little rearing area and a lack of debris.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area B ADF&G No. 107-10-25 Date 5/22/84

1. Reach	1I	2	2	2	3	3	3	3
2. Section	1	2	3	4	5	6	7	8
3. Section Length (m)	100	100	100	100	100	100	100	100
4. Gradient	2	2	3	4	7	9	9	14
5. Water Quality	3	3	3	3	3	3	3	3
6. Water Width a. channel	5	3.7	4.4	3.5	2.9	3.9	5.2	3.2
b. water	3.2	3.7	4.4	3.5	2.9	2.1	5.2	3.2
c. special character	3	-	1	1	1	1	1	-
7. Water Type % SS	40	30	30	30	20	30	30	30
SF	60	70	70	70	80	70	70	70
DS								
DF								
8. Undercut Banks (m) left	0	5	20	60	40	30	15	5
right	5	15	60	40	40	30	15	5
9. Debris Cover % small	0	1	2	5	2	3	2	1
large	0	8	10	20	10	15	10	2
10. Riparian Vegetation %	1	3	50	50	50	60	60	40
11. Substrate %:								
a. boulders			10	10	55	30	50	70
b. cobble	10	30	25	25	25	45	25	10
c. gravel	50	10	5	5	5	10	10	10
d. sand	40	60	60	60	15	15	15	10
e. organic muck								
f. bedrock								
g. other								
12. ASA	75	50	25	15	5	20	5	0
13. Gravel Shape	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
14. Streambank Vegetation								
a. percentage	100	50/50	100	100	100	100	100	100
b. type	A	A/B	B	B	B	B	B	B
15. Average Depth (cm)	13	18	8	10	8	10	6	8
16. Beaver Activity	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-
18. Aquatic Vegetation								
a. type	3	3	3	3	3	3	3	3
b. density	3	3	3	3	3	3	3	3
19. Sampling	-	Y	-	-	-	-	-	-
20. Rearing Area								
21. Comments								

Section 1: The upper banks are grassy meadows. A tributary enters from the left bank. It meanders through the grass and exists from a beaver pond area. The tributary provides possible rearing area, but no ASA. No rearing fish were observed in the tributary.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 2: The ASA is not good quality due to the presence of fines and the compactness of the substrate. A few rearing coho were observed. The debris loading is increasing and providing better rearing habitat. The temperature and pH were 5°C and 7 respectively. The flow has estimated to be .25 m³/sec.

Section 3: The riparian vegetation is primarily stinkcurrent and devil's club. The left bank is severely cut in places exposing soil.

Section 4: A heavy debris load and extensive braiding of the stream is present.

Section 5: The braiding continues, but boulders become the dominant substrate material. The gradient also increases in this Section.

Section 6: Many plunge pools are present in Sections 6 and 7. The heavy debris load and braiding continue also.

Section 8: The survey was discontinued at the end of the Section. The ASA has decreased and the gradient is between 11 and 14%. The stream enters a V-notch with little ASA or rearing area present. Few rearing fish have been observed.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area C ADF&G No. 107-10-25 Date 5/22/84

1. Reach	1	1	1	1	1	1	1	1
2. Section	1	2	3	4	5	6	7	8
3. Section Length (m)	100	100	100	100	100	100	100	100
4. Gradient	3	3	3	4	4	4	4	4
5. Water Quality	3	3	3	3	3	3	3	3
6. Water Width a. channel	4.3	5	5.4	3.4	4.5	3.5	3.9	4.2
b. water	2.8	4.7	2.6	3.4	3.3	3.5	3.9	4.2
c. special character	-	-	-	-	-	-	-	-
7. Water Type % SS	50	50	45	55	50	60	60	60
SF	45	50	50	40	45	35	35	35
DS	5		5	5	5	5	5	5
DF								
8. Undercut Banks (m) left	10	30	20	40	25	80	70	60
right	10	10	25	25	10	20	20	20
9. Debris Cover % small	2	1	1	0	1	0	0	1
large	5	5	3	1	3	1	1	2
10. Riparian Vegetation %	20	20	20	15	20	40	25	25
11. Substrate %:								
a. boulders	50	54	50	55	39	25	15	15
b. cobble	15	15	15	15	30	25	30	35
c. gravel	10	10	10	10	15	10	15	20
d. sand	25	20	25	15	15	40	40	30
e. organic muck								
f. bedrock		1	10	5	1			
g. other								
12. ASA	15	1	1	5	15	15	20	15
13. Gravel Shape	2	2	2	2	2	2	2	2
14. Streambank Vegetation								
a. percentage	100	100	100	100	100	100	100	100
b. type	B	B	C	C	C	C	C	C
15. Average Depth (cm)	8	13	10	9	13	8	9	8
16. Beaver Activity	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-
18. Aquatic Vegetation								
a. type	1/3	1/3	1/3	1/3	1/3	1/3	1/3	1/3
b. density	2	2	1	1	1	1	1	1
19. Sampling	-	-	-	-	-	-	-	-
20. Rearing Area								
21. Comments								

Section 1: The flow was estimated at .2 m³/sec and the temperature and pH were 7°C and 7.5 respectively.

Section 2: PS bones were observed on the bank. A small trickle tributary enters from right bank. Few rearing fish were observed.

Section 8: The survey was discontinued at the end of the Section. There are still patches of good ASA present and PS fish bones were observed on the upper banks. The rearing habitat is of mediocre quality due to a lack of debris and few rearing fish have been observed. The stream forks 50 m. beyond the end of the survey. The left fork is 8°C and the right fork has a water temperature of 6.5°C.

FISH SAMPLING FORM

ADF&G No. 107-10-25 Date 5/22/84 Stream Name _____
 Survey Area A H₂O Temp. 6.25°C Bait Braunswager/salmon eggs

Trap No.	Time Set	Time Pulled	Species	Comment
1	1110	1150	Ø	Section 4
2	1450	1645	Ø	Section 23
3	1100	1210	Ø	Section 39 5/23
4	1100	1210	Ø	Section 39 5/23

FISH SAMPLING FORM

ADF&G No. 107-10-25 Date 5/22/84 Stream Name _____
 Survey Area B H₂O Temp. 5°C Bait Braunswager/salmon eggs

Trap No.	Time Set	Time Pulled	Species	Comment
1	0910	1035	Ø	Section 3

PEAK ESCAPEMENT RECORD

107-10-25

DATE	PINK	CHUM	OTHER SPECIES	REMARKS
8/30/71	1,503			uncounted fish present
9/19/71		100		
8/17/73	520			
8/28/73	300			
8/28/75	750			
9/9/76	2,500			
8/10/77	250			
8/6/78		50		
8/11/78	7,700			
8/19/79	900			
8/21/80	200			
9/17/80		650		
8/25/81	664			
9/19/81		1		
8/19/82	650			

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Union Bay #1 2. ADF&G Catalog No. _____

3. USGS Map No. Craig D-1 4. Legal Location R86E,T71S,S-23

5. Latitude and Longitude 55°46'53"132° 11' 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,219,9-14-73-02190 8. MGMT Area K29-720

9. Estimated Flow .09 m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical mining skid road

12. Temperature Sensitivity and/or origin 5.4

13. Access 2 14. Stream Temperature 10.5°C

15. pH 6.5 16. Intertidal Zone _____ a. Gradient 6

b. Bottom type 1. fines _____ 2. gravel/small cobble _____

3. large cobble/boulders/bedrock 100

c. ASA poor - substrate all large boulders

d. Schooling only in Union Bay

e. Shellfish potential poor - large rocky substrate

f. Anchorage fair for small skiff

17. Comments

This small stream contained limited fisheries potential. Thick grass and skunk cabbage were growing in the streambed 70 m. from the ITZ, giving the appearance of an intermittent flow. The substrate was predominately mossy boulders. No rearing fish were observed or trapped. A 3 m. barrier falls is present 100m. from the ITZ. Cut stumps and the growth pattern of alders indicated that a skid road may have been cut out beside and through the creek. Above the falls, the stream enters a muskeg and only minimal poor quality ASA was present.

18. Investigators Burns/Cariello 19. Weather 6

20. Date 5/21/84 21. Time 0800-0845

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Union Bay # 1 2. ADF&G Catalogue No. _____

3. USGS Map No. Craig D-1 4. Legal Location R86E, T71S, S-23

5. Latitude and Longitude 55° 46' 53" 132° 11' 6. Agency Unit 05

7. Aerial Photo No. 0024 1873 219 9-14-73-02190 8. Mgmt. Area K29-720

9. Estimated Flow .09 m³/sec 10. Flow Stage 3

11. Land Use a. present none observed b. historical mining skid road

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 10.5° C

15. pH 6.5 16. Intertidal Zone _____ a. Gradient 6

b. Bottom type 1. fines _____ 2. gravel/small cobble _____

3. large cobble/boulders/bedrock 100

c. ASA poor-substrate all large boulders

d. Schooling only in Union Bay

e. Shellfish potential poor-large rocky substrate

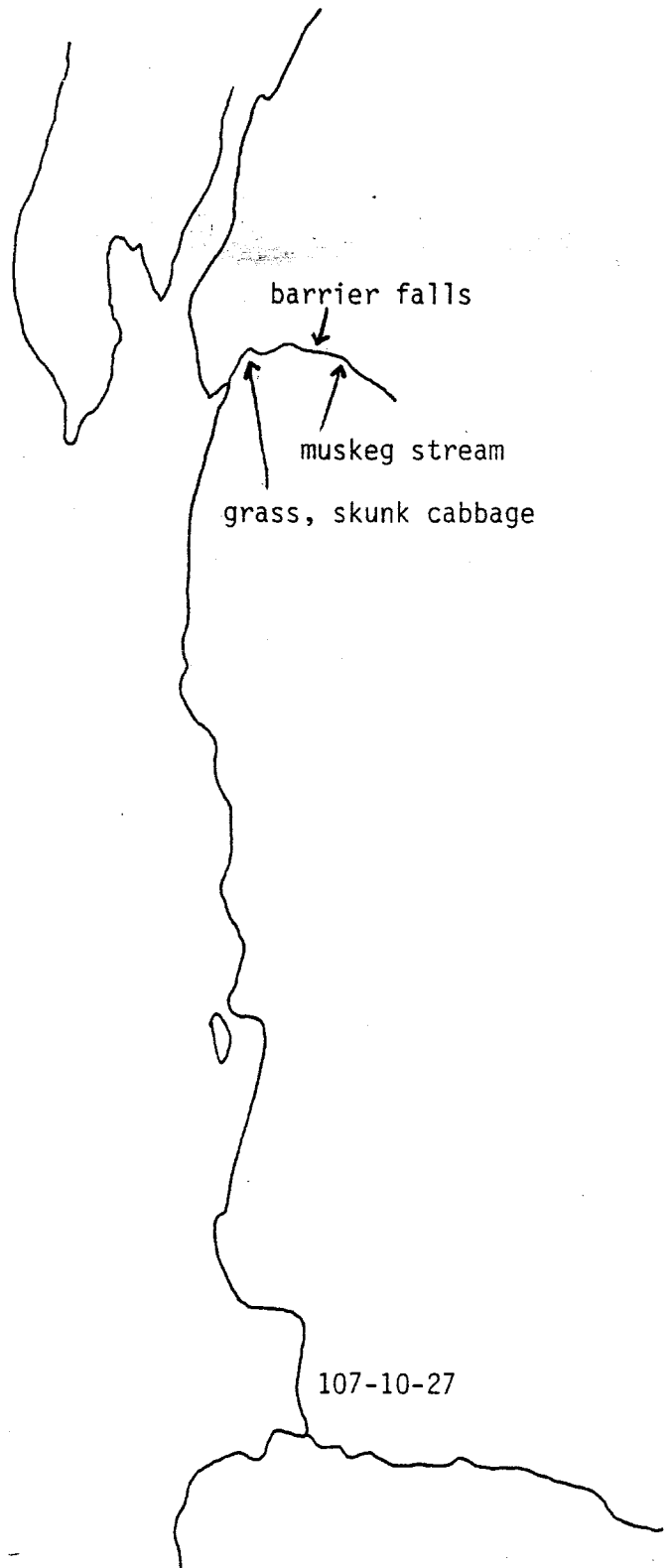
f. Anchorage fair for small skiff

17. Comments This small stream contained limited fisheries potential. Thick grass and and Skunk Cabbage were growing in the streambed 70 m. from the ITZ, giving the appearance of an intermittent flow. The substrate was predominately mossy boulders. No rearing fish were observed or trapped. A 3m. barrier falls is present 100 m. from the ITZ. Cut stumps and the growth pattern of Alders indicated that a skid road may have been cut out beside and through the creek. Above the falls, the stream enters a muskeg and only minimal poor quality ASA was present.

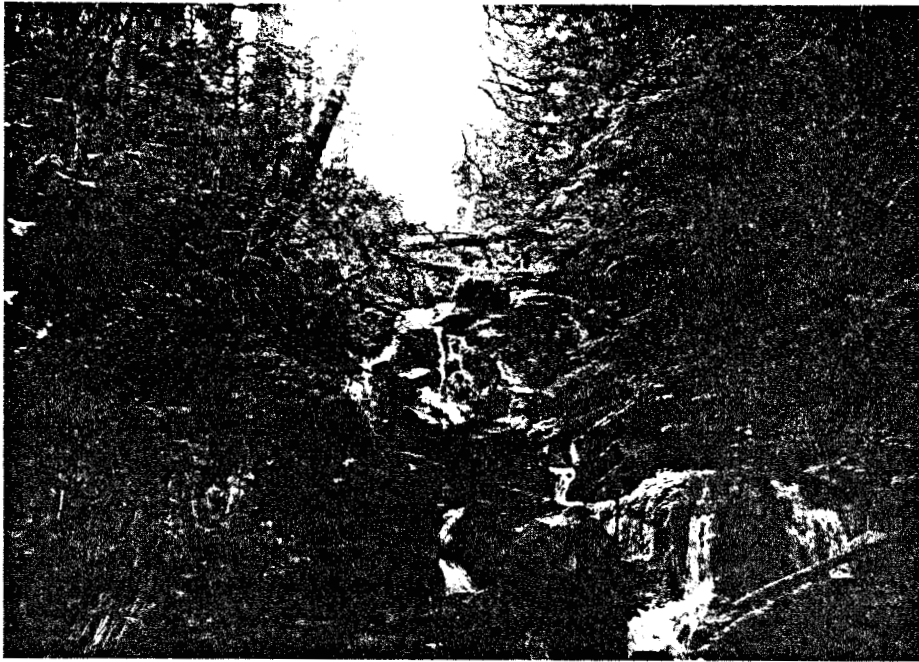
18. Investigators Burns/Cariello 19. Weather 6

20. Date 5/21/84 -252- 21. Time 0800-0845

↑
UNION BAY



Union Bay #1



1. Barrier 100 m. from ITZ.

FISH SAMPLING FORM

ADF&G No. _____ Date 5/21/84 Stream Name Union Bay #1
 Survey Area _____ H₂O Temp. 10.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0815	0845	Ø	45 m. above ITZ

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-20 2. Historical Fish PS,SS,DV,CT

Part II.

1. Stream Name Cannery Creek 2. ADF&G Catalog No. 107-10-27

3. USGS Map No. Craig D-1 4. Legal Location R86E,T70S,S-35

5. Latitude and Longitude 55°45'5" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,219,9-14-73,02190 8. MGMT Area K29-710

9. Estimated Flow 4 m³/sec 10. Flow Stage 3

11. Land Use. a. present mining claim b. Historical cannery site

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 5.5°C

15. pH 6.5 16. Intertidal Zone 30 a. Gradient 4

b. Bottom type 1. fines 30 2. gravel/small cobble 10

3. large cobble/boulders/bedrock 60

c. ASA poor - upper ITZ is predominately boulders

d. Schooling only in saltwater

e. Shellfish potential cockles, mussels, and a large number of clams observed

f. Anchorage good anchorage at mouth, unprotected to the north

17. Comments A new house is being built at the mouth of the stream at the old cannery site 107-10-27 is steep, swift, and has a predominately bedrock/boulder substrate for the first 500 m. There are stretches of whitewater present that could obstruct PS passage Sections 6 through 17 contain fair amounts of ASA and good quality rearing area. The ASA was difficult to judge during the survey due to high water. The substrate in the ASA is mainly cobble and contains a moderate amount of fines. There was good water flow through the substrate however, and the substrate was fairly loose, considering the size of the cobble. The observance of rearing fish was patchy and may have been due to the cold water and high water. Good quality rearing was available in Sections 6 through 17 with the presence of heavy debris, undercut banks and pool areas. The water velocity was consistently strong throughout the survey area. The gradient never fell below 2% and was slowly, but steadily increasing at the end of the survey.

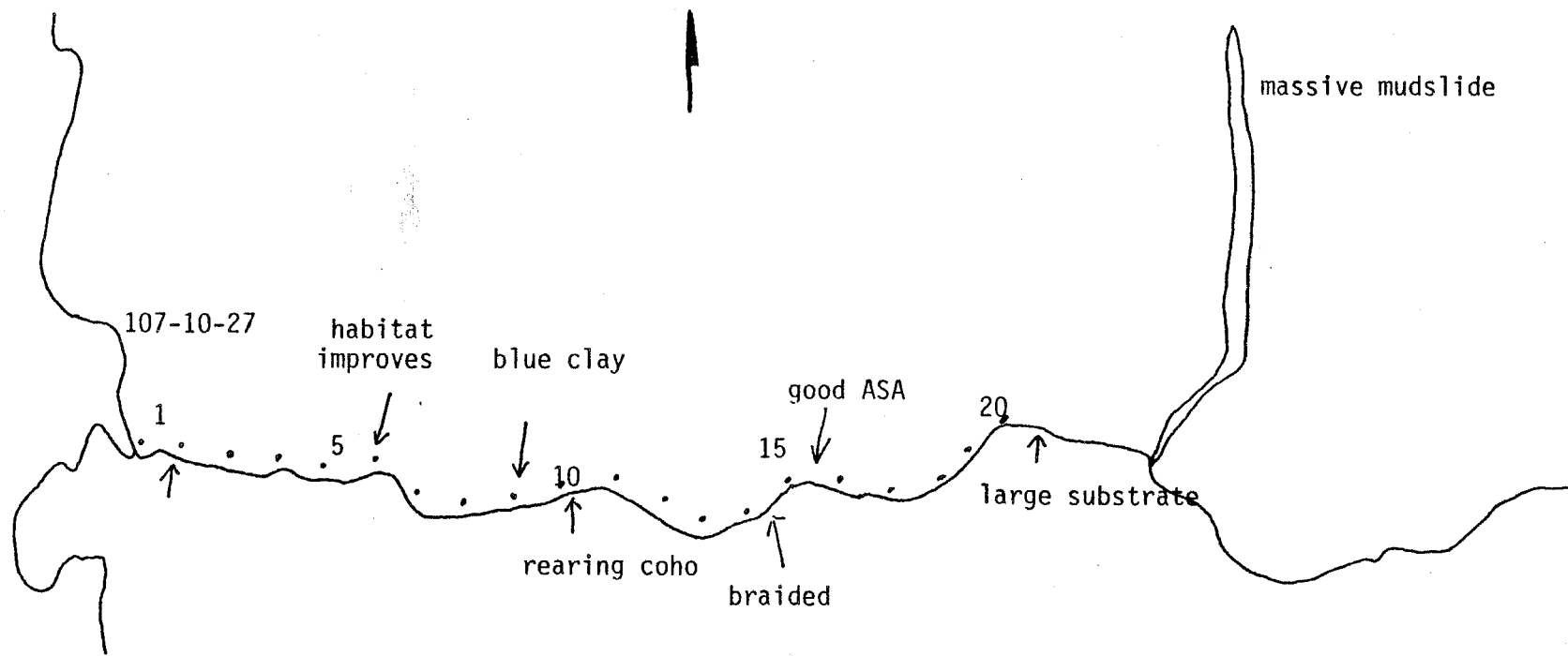
18. Investigators Burns/Cariello 19. Weather 6,1

20. Date 5/20/84 -256- 21. Time 0830-1600

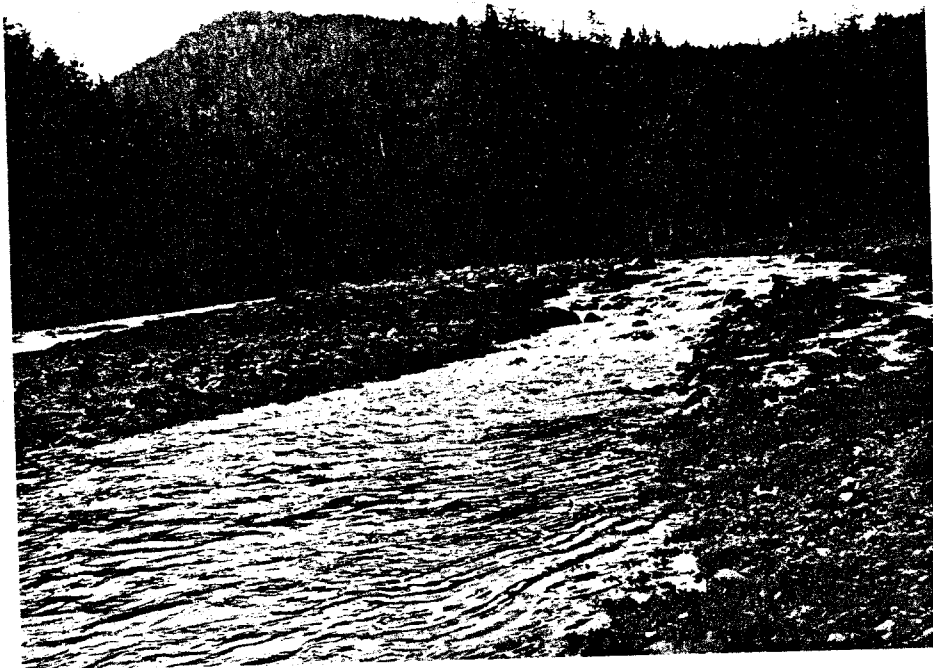
BASELINE AQUATIC SURVEY, continued

The substrate was predominately boulders when the survey was discontinued and the rearing habitat quality was declining due to the uniform deep swift nature of the stream. No barrier was present however, and there were still patches of large substrate present that might be considered ASA.

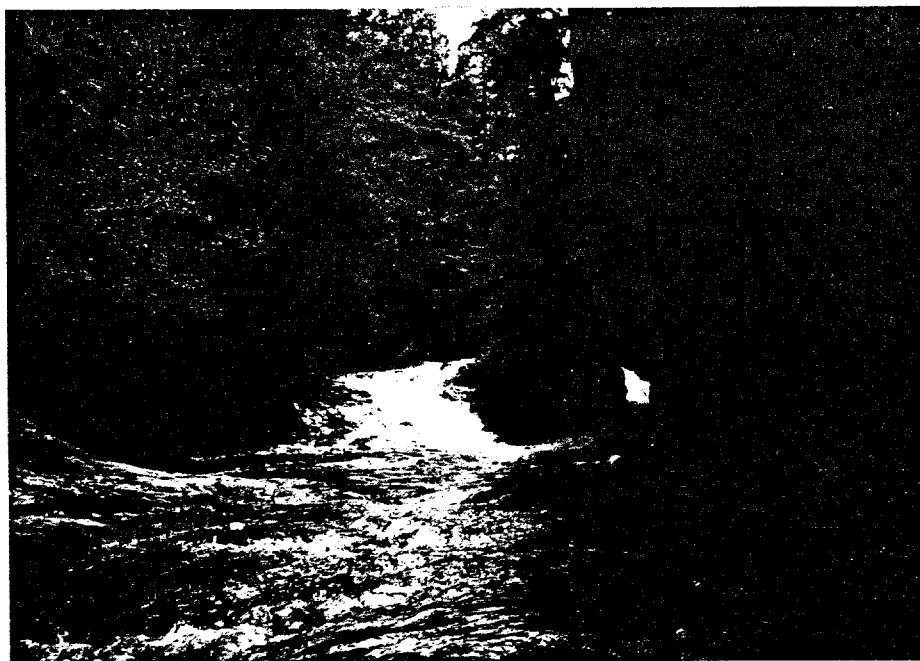
The steep slopes on either side of the stream may be unstable. A large slide nearly a mile long was observed on the left hillside about 200 m. beyond the end of the survey. A local resident stated that Cannery Creek has a good run of chum salmon.



107-10-27

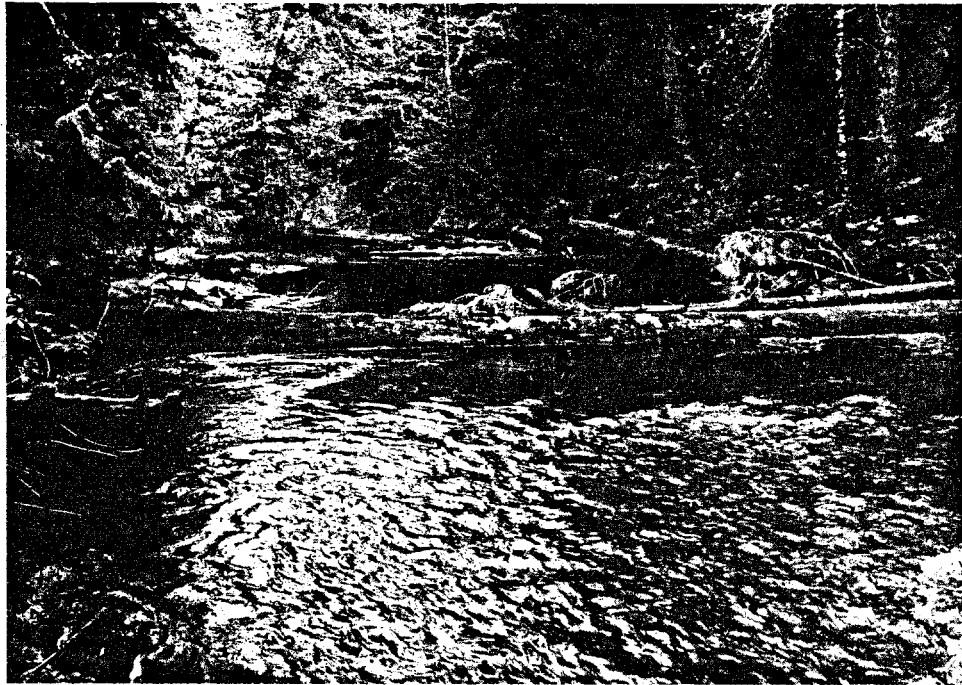


1. Poor ASA in ITZ.



2. High velocity stretch in Section 1.

107-10-27



3. ASA in Section 9, typical of stretches from Section 6 to 17.



4. Increasing gradient and substrate size at end of survey
Section 20.

107-10-27

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	22	0	0					
2	100	10	0	0					
3	100	11	1	11					
4	100	10	1	10					
5	100	10.5	5	52.5					
6	100	11.5	20	230					
7	100	13	15	195					
8	100	11.5	25	287.5					
9	100	11	20	220					
10	100	12	20	240					
11	100	17	0	0					
12	100	8.8	1	8.8					
13	100	13.5	1	13.5					
14	100	13	15	195					
15	100	9.5	20	190					
16	100	12	10	120					
17	100	10	50	500					
18	100	12	1	12					
19	100	8	5	40					
20	100	12.5	1	12.5					

Total ASA 2,337.8 m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Cannery Creek ADF&G No. 107-10-27 Date 5/20/84

1. Reach	1	1	1	1	1	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	9	14	5	5	6	3	2.5	2	2
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	30	10	11	11	11	11.5	13	11.5	27.8
b. water	22	10	11	10	10.5	11.5	13	11.5	11
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS						5	10	10	5
SF	5				10	85	70	65	75
DS	5	5	5	5	10	5	15	10	15
DF	90	95	95	95	80	5	5	15	5
8. Undercut Banks (m) left	0	0	0	0	5	10	5	15	15
right	0	0	0	0	5	15	5	15	15
9. Debris Cover % small	0	0	0	0	0	0	0	3	3
large	0	0	0	2	1	3	5	10	10
10. Riparian Vegetation %	10	5	5	5	5	10	5	15	15
11. Substrate %:									
a. boulders	70	65	70	65	60	30	5		
b. cobble	1	2	20	20	20	30	50	50	50
c. gravel	1			1	5	15	15	20	20
d. sand	1	3	10	14	15	25	20	30	30
e. organic muck									
f. bedrock	27	30							
g. other									
12. ASA	0	0	1	1	5	20	15	25	20
13. Gravel Shape	2	2	2	2	3	1	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)									
16. Beaver Activity	5	5	5	5	5	6	6	6	6
17. Potential Barrier	-	1	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	2/1	3/1	3/1	3/1	3/1	3/1	3/1	3	3/1
b. density	2	2	2	2	3	1	3	3	3
19. Sampling	-	-	-	Y	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 1: An old wooden water line runs along the left bank. The stream is deep, swift, and predominately boulders.

Section 2: There are a series of falls and whitewater at the end of Section 1 and on through Section 2. The most severe falls has a vertical rise of about 3.5 m. over a 15 m. horizontal distance. This series of falls could be a velocity barrier to PS at the present flow. The gradients in this stretch were 14% for 30 m., 20% for 15 m., and 5% for 55m.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: At the end of Section 3 are the remains of a concrete dam and the source of the cannery water line.

Section 4: Fresh bones from what appeared to be an adult steelhead were observed.

Section 5: A small tributary enters from the steep left bank. The water temperature is 7°C and there is no ASA or rearing habitat present.

Section 6: Rearing coho were observed with great regularity beginning in this Section. The ASA is in swift water and fines are present in the substrate. There is good quality rearing habitat available with undercut banks and large debris present. Reach 2 begins with habitat change and a decrease in the gradient and size of the substrate. Filamentous moss is present.

Section 7: An operculum of a freshly killed steelhead was observed on the bank.

Section 8: Some braiding is present.

Section 9: The rearing habitat continues to be good quality. The last 20 m. of the left bank in this Section is undercut exposing blue clay. Some mass wasting is present in this area.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Cannery Creek ADF&G No. 107-10-27 Date 5/20/84

1. Reach	2	2	2	2	2	2	2	2	2
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2	2	2.5	2.5	3	3	3	2.5	3
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	13	17	16.3	13.5	13	13.5	12	10	12
b. water	12	17	8.8	13.5	13	9.5	12	10	12
c. special character	1	1	1	-	-	1	1	1	-
7. Water Type % SS	10	10	10	15	20	20	10	10	10
SF	60	60	70	60	50	40	40	40	60
DS	10	10	10	15	20	20	20	20	10
DF	20	20	10	10	10	20	30	30	20
8. Undercut Banks (m) left	20	15	15	15	20	25	40	50	50
right	20	10	10	15	15	25	30	50	50
9. Debris Cover % small	5	3	1	1	1	5	1	1	1
large	10	10	5	5	5	15	8	10	10
10. Riparian Vegetation %	10	5	5	5	10	20	10	20	15
11. Substrate %:									
a. boulders		10	20	10	10	10	10	15	40
b. cobble	50	60	60	60	55	50	55	55	45
c. gravel	20		1	10	15	20	15	15	5
d. sand	30	30	19	20	20	20	20	15	10
e. organic muck									
f. bedrock									
g. other									
12. ASA	20	0	1	1	15	20	10	50	1
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	50/50	100	100	100	100	100	100	100
b. type	B	A/B	B	B	A	A	A	A	B
15. Average Depth (cm)									
16. Beaver Activity	6	6	6	6	6	6	6	6	6
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3/1	3/1	3/1	3/1	3/1	3/1	3/1	1/2	1/2
b. density	3	3	3	3	3	3	3	3	3
19. Sampling	Y	-	-	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 10: Rearing coho were observed throughout the Section. The left bank is severely cut in places, but no blue clay is exposed.

Section 11: A coho fry was scooped up with half of minnow trap.

Section 14: A small tributary enters from the left bank. No ASA is present.

Section 15: The stream is very braided with 3 or 4 channels running through this Section. Beaver dams were observed 50 m. to the left of the stream.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Cannery Creek ADF&G No. 107-10-27 Date 5/20/84

1. Reach	3	3							
2. Section	19	20							
3. Section Length (m)	100	100							
4. Gradient	3.5	4							
5. Water Quality	3	3							
6. Water Width a. channel	8	12.5							
b. water	8	12.5							
c. special character	-	1							
7. Water Type % SS	10	10							
SF	70	60							
DS	10	10							
DF	10	20							
8. Undercut Banks (m) left	40	50							
right	30	50							
9. Debris Cover % small	2	5							
large	10	15							
10. Riparian Vegetation %	15	15							
11. Substrate %:									
a. boulders	35	50							
b. cobble	45	30							
c. gravel	5								
d. sand	15	20							
e. organic muck									
f. bedrock									
g. other									
12. ASA	5	1							
13. Gravel Shape	2	2							
14. Streambank Vegetation									
a. percentage	100	100							
b. type	B	B							
15. Average Depth (cm)									
16. Beaver Activity	6	6							
17. Potential Barrier	-	-							
18. Aquatic Vegetation									
a. type	1/2	1/2							
b. density	3	3							
19. Sampling	-	-							
20. Rearing Area									
21. Comments									

Section 19: Patches of large debris are present. There is blowdown from both sides of the creek as well as large logs that appear to have been washed down stream. Both hillsides appear to be unstable.

Section 20: The survey was discontinued at the end of the Section. The stream is still quite swift and the substrate size is increasing. Rearing fish have been

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 20, continued: observed infrequently even though the rearing habitat is still adequate with a heavy debris load that is providing some pool areas and cover. The substrate is large and rather compact and appears that it might provide patches of ASA. A reconnaissance 200 m. above here found an old slide nearly a mile long on the left hillside that had deposited a large amount of debris into the stream. The gradient and substrate size is increasing slowly.

FISH SAMPLING FORM

ADF&G No. 107-10-27 Date 5/20/84 Stream Name Cannery Creek
 Survey Area A H₂O Temp. 5.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1015	1520	Ø	Section 4
2	1130	1200	Ø	Section 10 rearing coho were observed around the trap.

PEAK ESCAPEMENT RECORD

107-10-27

DATE	PINK	CHUM	OTHER SPECIES	REMARKS
8/15/75	1,100			
8/29/76				no fish observed
9/14/82	1,152			

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Union Bay #2 2. ADF&G Catalog No. _____

3. USGS Map No. Craig D-1 4. Legal Location R86E, T71S, S-35

5. Latitude and Longitude 55°45'37", 132°11' 6. Agency Unit 05

7. Aerial Photo No. 0024, 1873, 217, 9-14-73, 02190 8. MGMT Area K29-710

9. Estimated Flow .03 m³/sec 10. Flow Stage 3

11. Land Use. a. present float house at mouth b. Historical logged by cannery

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 6.5°C

15. pH 6.5 16. Intertidal Zone _____ a. Gradient _____

b. Bottom type 1. fines _____ 2. gravel/small cobble _____

3. large cobble/boulders/bedrock _____

c. ASA poor-the flow is only a trickle through the ITZ

d. Schooling only in Union Bay

e. Shellfish potential evidence of Butter clams and cockles were observed

f. Anchorage fair for small skiff at mouth - small tidal flat

17. Comments

The intertidal gradient and substrate composition could not be measured because of barking and biting dogs that belonged to the occupants of the float house. Union Bay #2 has little fisheries potential. A series of debris blocks are present 50 m. from the ITZ. The stream goes underground and through the roots of a tree immediately beyond the ITZ. The gradient increases from 11 to 15% within 75 m. The substrate is predominately boulders and sand and only one small patch of poor quality ASA is present below the first barrier. The resident of the float house state that although PS and CS had been seen in the stream, they left before spawning. He also reported schools of fry in the area which could possibly be PS fry from 107-10-30. No rearing fish were observed in the stream.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 5/21/84 21. Time 0915-0945

Union Bay #2

float
house

15% gradient

107-10-27

Union Bay #3

Union Bay #1



1. Typical Habitat

FISH SAMPLING FORM

ADF&G No. _____ Date 5/21/84 Stream Name Union Bay #2
 Survey Area _____ H₂O Temp. 6.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0920	0940	Ø	30m. above ITZ

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Union Bay #3 2. ADF&G Catalog No. _____

3. USGS Map No. Craig D-1 4. Legal Location T86E,T11S,S-35

5. Latitude and Longitude 55°44'53"132°11'5" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,217,9-14-73,02190 8. MGMT Area K29-710

9. Estimated Flow .08 m³/sec 10. Flow Stage 3

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 6°C

15. pH 6.5 16. Intertidal Zone _____ a. Gradient 10

b. Bottom type 1. fines _____ 2. gravel/small cobble _____

3. large cobble/boulders/bedrock 100

c. ASA poor-the substrate is boulders and cobble

d. Schooling only in Union Bay

e. Shellfish potential none observed

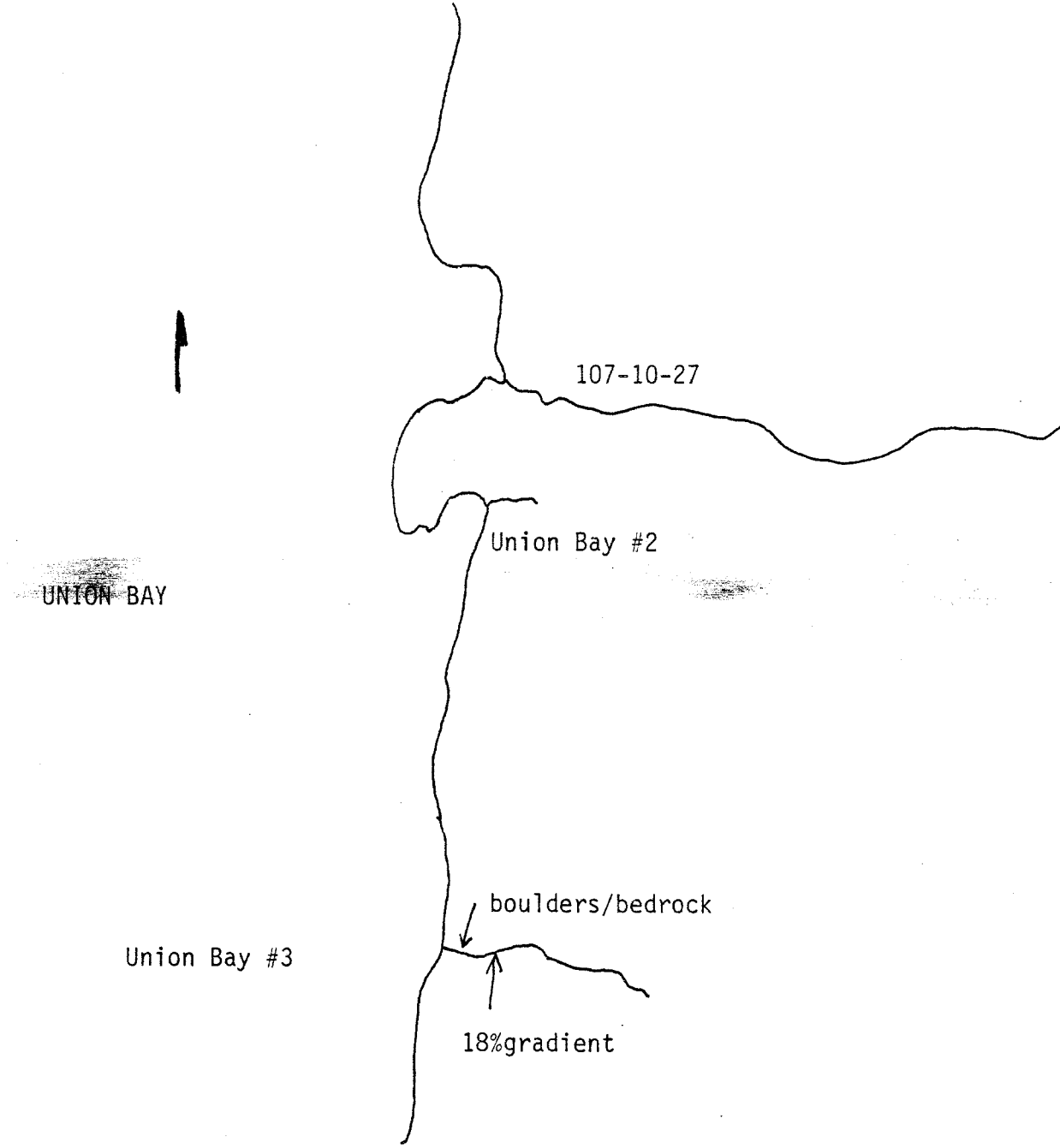
f. Anchorage fair for small skiff

17. Comments

The substrate becomes boulders and bedrock covered with moss 50 m. from the ITZ. Only a small patch of ASA is present before the gradient increases to 18%. No rearing fish were trapped or observed. The stream continues up a steep hillside.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 5/21/84 21. Time 1000-1045



Union Bay #3



1. Habitat 50 m. from the ITZ.

FISH SAMPLING FORM

ADF&G No. _____ Date 5/21/84 Stream Name Union Bay #3

Survey Area _____ H₂O Temp. 6°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1010	1045	Ø	50m above ITZ.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Union Bay #4 2. ADF&G Catalog No. _____

3. USGS Map No. Craig C-1 4. Legal Location R86E, T71S, S-12

5. Latitude and Longitude 132°10'00", 55°43'40" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,215,9-14-73,02190 8. MGMT Area K29-709

9. Estimated Flow .02 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical old clearcut

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 10°C

15. pH _____ 16. Intertidal Zone _____ a. Gradient 1.5

b. Bottom type 1. fines _____ 2. gravel/small cobble 100%

3. large cobble/boulders/bedrock _____

c. ASA excellent - 100% m x 30 m. stretch of good gravel

d. Schooling a large pool is available in the upper ITZ.

e. Shellfish potential Evidence of Dungeness crab and Butter clams were observed

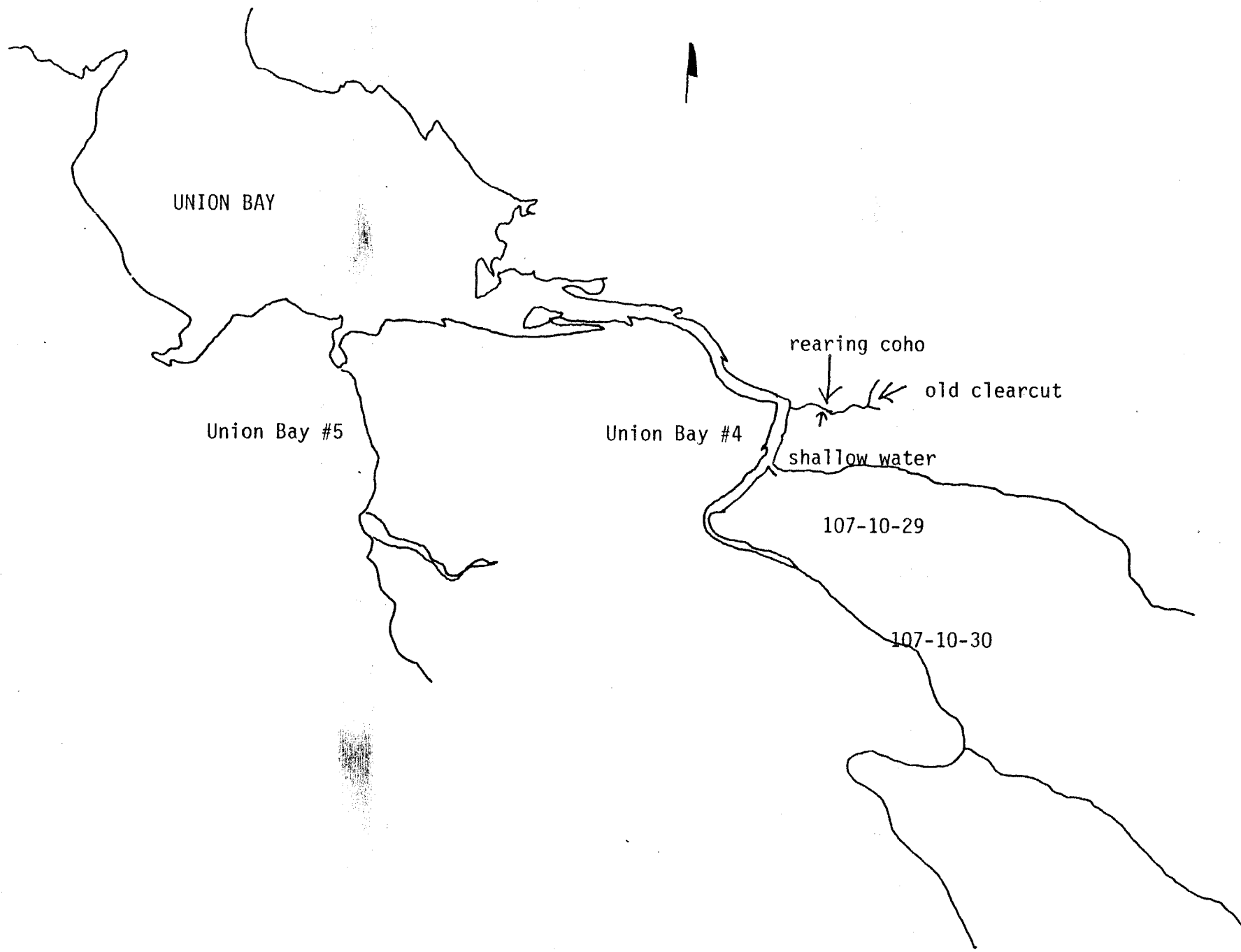
f. Anchorage extensive tidal flat

17. Comments

This stream shares a common ITZ with 107-10-30 and 107-10-29. Union Bay #4 is a small trickle out of an old clearcut. The substrate is gravel, sand and organic muck. However, the ASA is very silty, making it very poor quality. There is good rearing habitat available with large debris and abundant pools. Rearing coho were observed as far up as the survey went (300 m). The stream is quite shallow in places and may be intermittent at times. Skunk cabbage was growing in the stream in places. The gradient increases to 7% after 300 m. and the stream goes under the bank in several places. High water discharge would be necessary to allow adult salmon passage up the stream since there are numerous sections where the stream is only 2.5 m. deep. The stream averages 1 m. in width and has an estimated flow of .02 m³/sec. The presence of ASA, even though it is poor quality, and rearing coho makes this stream capable of being nominated as an anadromous stream.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 8/12/84 21. Time 1130-1230



Union Bay #4



1. ITZ



2. Typical habitat. Rearing fish were moderately abundant.

FISH SAMPLING FORM

ADF&G No. _____ Date 8/12/84 Stream Name Union Bay #4

Survey Area _____ H₂O Temp. 10°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1145	1230	Ø	50m. above ITZ.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-40 2. Historical Fish ps,ss,cs

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 107-10-29

3. USGS Map No. Craig C-1 4. Legal Location R86E,T71S,S-12

5. Latitude and Longitude 55°43'37",132°9'50" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,216,9-14-73,02190 8. MGMT Area K29-709

9. Estimated Flow .8 m³/sec. 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,4

13. Access 2 14. Stream Temperature 11°C

15. pH 6.5 16. Intertidal Zone _____ a. Gradient 1.5

b. Bottom type 1. fines _____ 2. gravel/small cobble 100

3. large cobble/boulders/bedrock _____

c. ASA excellent stretch of 100 m x 30 m. gravel - shared with 107-10-30

d. Schooling A large schooling area is present in the upper ITZ

e. Shellfish potential Dungeness crab and butter clams are present

f. Anchorage good, but an extensive tidal flat is present

17. Comments

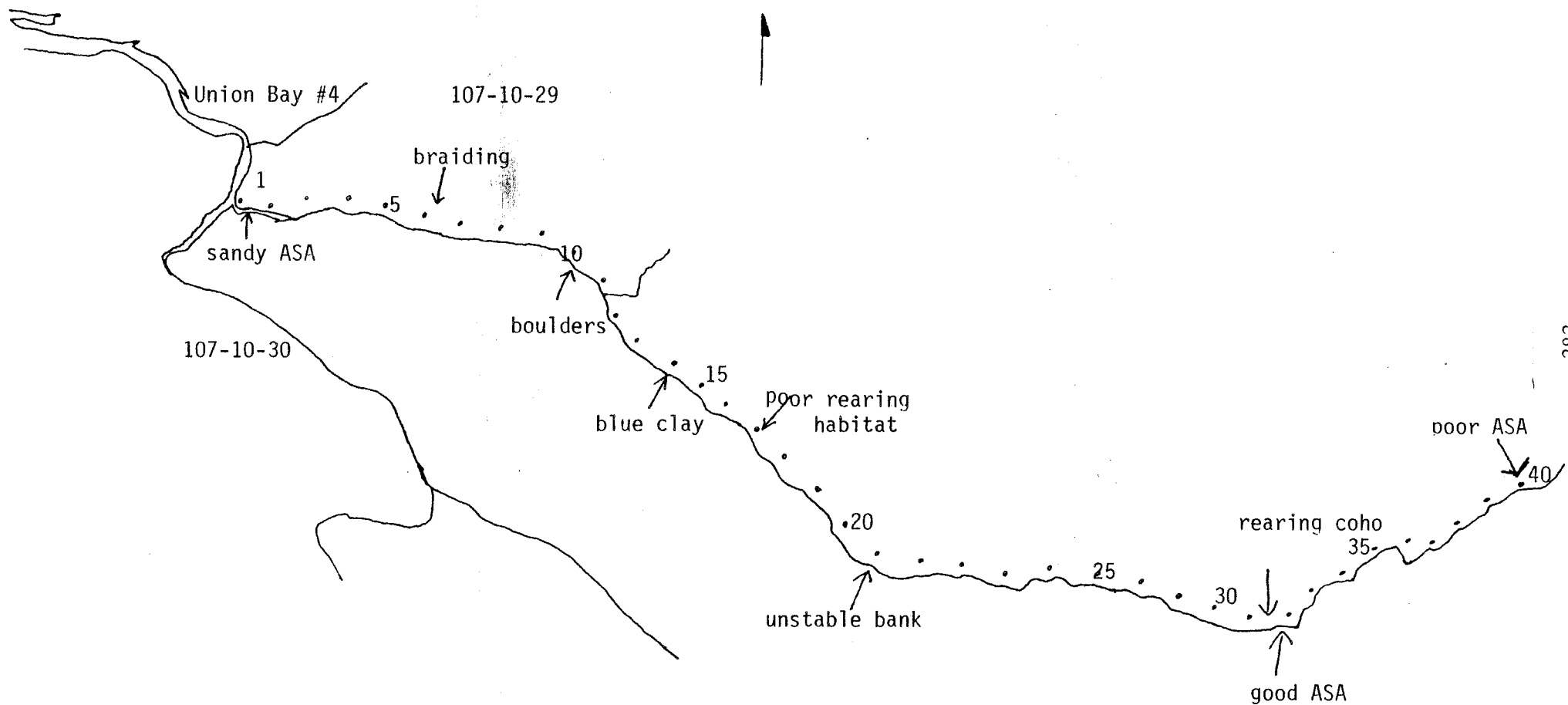
A Peterson disc tag was found in Section 5. 107-10-29 and 107-10-30 share a common ITZ.

The quality of the upstream fisheries habitat however, does not compare with Black Bear Creek. The substrate is rather compact and contains heavy concentrations of interstitial sand. The amount of ASA present is drastically less than 107-10-30.

The best ASA is combined for the most part to Sections 1 through 6 and Sections 31 through 37. The best rearing habitat was found in the second reach, Sections 4 through 10, and above Section 31. Rearing coho were found infrequently throughout the survey area. An increase in rearing coho density was observed in the Sections 31 through 37 where the ASA also improved in quality. The survey was discontinued at the end of Section 40. Few rearing fish were being observed even though the rearing habitat was suitable and there were no barriers to fish passage.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 6/23/84 -281- 21. Time 0800-1700



107-10-29

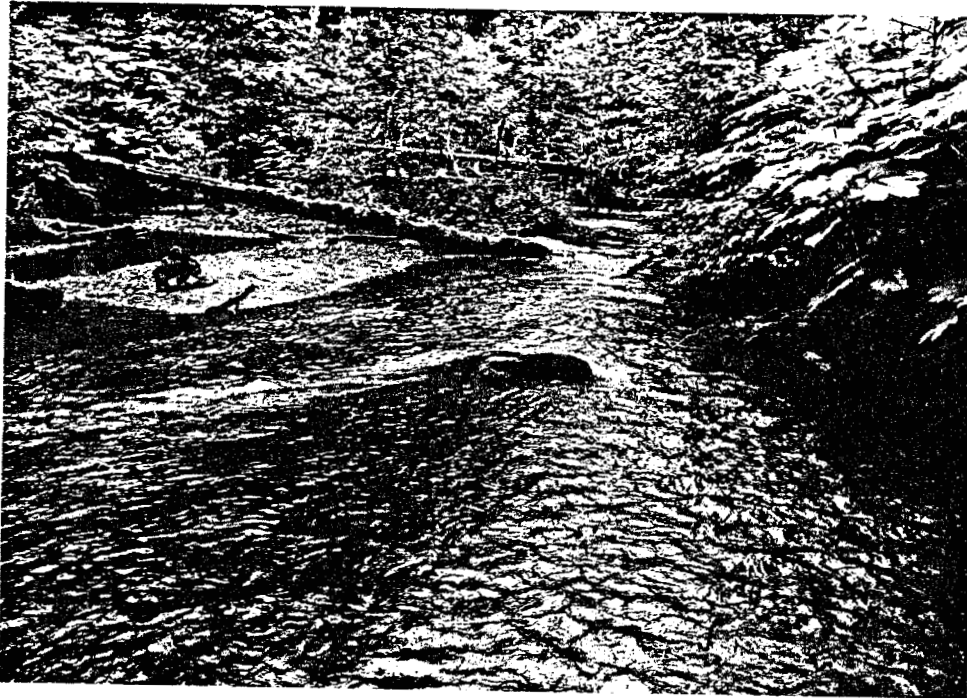


1. Section #1



2. Section #10

107-10-29



3. Section #40

107-10-29

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	9	50	450					
2	100	22	25	550					
3	100	17.8	5	89					
4	100	12	10	120					
5	100	13	10	130					
6	100	8.8	20	176					
7	100	8	1	8					
8	100	14	1	14					
9	100	16	0	0					
10	100	12	0	0					
11	100	8.4	0	0					
12	100	6.2	0	0					
13	100	5	5	25					
14	100	8.5	5	42.5					
15	100	10.5	5	105					
16	100	9	1	9					
17	100	6.5	1	6.5					
18	100	7	1	7					
19	100	6.5	0	0					
20	100	6.5	0	0					
21	100	9.5	0	0					
22	100	9	1	9					
23	100	15	1	15					
24	100	8	1	8					
25	100	8.2	1	8.2					
26	100	8.2	0	0					
27	100	7.5	1	7.5					
28	100	9.2	1	9.2					
29	100	9.5	0	0					
30	100	9.5	0	0					
31	100	8.5	10	85					
32	100	8.2	15	123					
33	100	9.8	10	98					
34	100	9	5	45					
35	100	7.8	20	156					
36	100	6.5	30	195					
37	100	5.7	20	114					
38	100	9.2	5	46					
39	100	8.2	5	41					
40	100	5.2	5	26					
Total	ASA			2,717.9m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-29 Date 6/23/84

1. Reach	1	1	1	2	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1	1	1	2	2.5	1.5	1.5	2	2
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	16	34	28.8	16	21	16.8	10	15	21
b. water	9	22	17.8	12	13	8.8	8	14	16
c. special character	-	-	-	1	-	-	-	1	1
7. Water Type % SS	10	25	30	30	40	30	20	30	30
SF	90	75	70	70	60	70	80	70	69
US									1
DF									
8. Undercut Banks (m) left	1	0	5	15	20	25	15	50	15
right	1	5	10	15	20	25	15	20	20
9. Debris Cover % small	1	1	1	1	5	5	1	2	2
large	1	1	1	5	40	30	1	10	10
10. Riparian Vegetation %	1	1	1	5	10	10	5	10	10
11. Substrate %:									
a. boulders		5	5	10	20	10	15	30	50
b. cobble		5	10	20	30	30	40	40	30
c. gravel	70	60	35	25	25	35	25	15	10
d. sand	30	30	30	25	25	25	20	15	10
e. organic muck									
f. bedrock			10	20					
g. other									
12. ASA	50	25	5	10	10	20	1	1	0
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	B	B	B	B	B	B	B	B
15. Average Depth (cm)	10	8	5	30	8	20	23	8	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3	3	3	3	3	3	3,1	3,1	3,1
b. density	1	1	1	2	2	2	3	3	2/3
19. Sampling	-	-	-	Y	-	-	-	-	-
20. Rearing Area	50	60	60	60	60	50	50	50	30
21. Comments									

Section 1: The substrate contains interstitial sand and the ASA is not high quality. A relatively large amount of sand was observed throughout the survey area. There also is little over for the rearing habitat for the first several Sections.

Section 3: A patch of blue clay was observed on the right bank.

Section 4: A trickle tributary enters from the left bank. The rearing habitat improves dramatically in this reach with the presence of undercut banks and large debris. Braidin

BASELINE (LEVEL TWO) AQUATIC FORM, continued

Section 4, continued: and channelling are present.

Section 8: The stream is severely braided into three channels. There is some braiding continuing into Section 9.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-29 Date 6/23/84

1. Reach	3	3	3	3	3	3	4	4	4
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2	2.5	3	2	2	2.5	4	5	2.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	22	10.4	12.4	8.6	8.5	11.5	16	10.5	8
b. water	12	8.4	6.2	5	8.5	10.5	9	6.5	7
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	20	10	10	15	10	15	20	15	10
SF	80	90	90	85	90	80	80	85	90
DS						5			
DF									
8. Undercut Banks (m) left	1	15	5	10	20	20	1	1	5
right	10	15	5	10	10	10	1	1	5
9. Debris Cover % small	0	1	1	1	1	1	1	0	1
large	3	1	1	2	1	3	1	0	1
10. Riparian Vegetation %	5	5	5	5	5	1	5	5	1
11. Substrate %:									
a. boulders	50	70	70	50	50	50	45	55	50
b. cobble	20	10	10	30	30	30	20	10	10
c. gravel	5	10	10	10	10	10	10	10	10
d. sand	10	10	10	10	10	10	10	10	10
e. organic muck									
f. bedrock	15						15	15	20
g. other									
12. ASA	0	0	0	5	5	5	1	1	1
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	25	30	30	30	25	13	25	30	51
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1/3	3/1	3/1	3/1	3/1	3/1	3/1	3/1	3/1
b. density	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3
19. Sampling	-	Y	-	-	-	-	-	-	Y
20. Rearing Area	20	20	20	20	20	20	20	10	10
21. Comments									

Section 10: The stream returns to a single channel. Boulders become the predominate substrate.

Section 11: A .015 m³/sec tributary enters from the left bank. The tributaries substrate is gravel and may provide some ASA at a higher flow. The tributary forks in half 50 m. from the mainstem.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 12: A $.05 \text{ m}^3/\text{sec}$ tributary enters from the left bank. The tributaries substrate is predominately boulders. No ASA is present due to the boulder substrate and a gradient of 15%.

Section 13: Another small tributary enters from the left bank. The mainstem has a cobble substrate the last 10 m. of the Section providing a stretch of ASA. This stretch of good ASA extends 10 m. into Section 14.

Section 14: Blue clay is exposed for a 20 m. stretch along the right bank. The undercut banks in this reach often contains swift water and may not provide good rearing habitat.

Section 15: A $.03 \text{ m}^3/\text{sec}$. tributary enters from the left bank. No ASA or rearing is provided due to its boulder substrate and steep gradient. A possible steelhead redd was observed.

Section 16: The gradient increases and large boulders become apparent. Very few rearing coho were observed.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-29 Date 6/23/84

1. Reach	4	4	4	4	4	4	4	4	4
2. Section	19	20	21	22	23	24	25	26	27
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2	2	2.5	3	3	1	3.5	3	3
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	8.5	9	10	10	15	9	10.2	9.2	8.5
b. water	6.5	6.5	9.5	9	15	8	8.2	8.2	7.5
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	15	10	10	10	10	10	15	15	10
SF	85	90	90	90	90	90	85	85	90
DS									
DI									
8. Undercut Banks (m) left	0	1	10	5	1	15	5	1	10
right	0	1	10	5	1	1	20	1	10
9. Debris Cover % small	1	1	1	1	1	1	1	1	1
large	1	1	1	1	1	5	5	2	1
10. Riparian Vegetation %	5	10	5	5	1	5	5	5	1
11. Substrate %:									
a. boulders	50	50	50	50	50	50	40	25	40
b. cobble	10	10	10	10	10	15	20	10	20
c. gravel	10	10	10	10	10	10	10	5	10
d. sand	10	10	10	10	10	15	15	10	10
e. organic muck									
f. bedrock	20	20	20	20	20	10	15	50	20
g. other									
12. ASA	0	0	0	1	1	1	1	0	1
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	10	25	25	25	25	30	13	30	30
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3/1	1/3	3/1	3/1	3/1	3/1	3/1	3/1	3/2
b. density	2	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area	10	10	10	10	10	10	10	10	10
21. Comments									

Section 21: The upper left bank is unstable at the end of the Section. Rearing coho were infrequently observed in this Section. The habitat remains fairly uniform in Sections 19 through 27 with little ASA or rearing habitat present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-29 Date 6/23/84

1. Reach	4	4	4	5	5	5	5	5	5
2. Section	28	29	30	31	32	33	34	35	36
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	3	2.5	2.5	1.5	2.5	2	2.5	2.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	9.2	10.5	9.5	9.5	10.2	9.8	9	7.8	10.5
b. water	9.2	9.5	9.5	8.5	8.2	9.8	9	7.8	6.5
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	15	20	20	15	20	15	15	20	25
SF	85	80	80	85	80	85	85	80	75
DS									
DF									
8. Undercut Banks (m) left	10	5	10	1	15	5	15	10	10
right	30	15	10	1	15	5	15	10	10
9. Debris Cover % small	1	1	1	1	2	1	1	5	2
large	1	1	1	5	8	1	5	15	20
10. Riparian Vegetation %	1	5	5	5	5	1	1	15	20
11. Substrate %:									
a. boulders	40	30	35	35	15	15	25	10	15
b. cobble	25	15	25	30	35	35	25	45	40
c. gravel	10	5	10	15	25	20	25	25	30
d. sand	10	10	10	10	15	15	15	20	15
e. organic muck									
f. bedrock	15	40	20	20	10	15	10		
g. other									
12. ASA	1	0	0	10	15	10	5	20	30
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	10	15	15	10	13	20	41	13	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3/1	3/1	1/3	1	1	1,3	1/3	1	1
b. density	2	2	2/3	2	3	3	2/3	3	3
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area	10	10	10	25	25	25	25	25	50

21. Comments

Section 28: A small amount of ASA is present and a few rearing coh were observed.
 Section 31: The gradient decreases in this reach and both the ASA and rearing habitat improved dramatically.
 Section 32: A small trickle tributary enters from the left bank.
 Section 33: Two rearing coho were captured in a dip net.
 Section 35: Fontinalis is observed with regularity.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 107-10-29 Date 6/23/84

1. Reach	5	5	5	5					
2. Section	37	38	39	40					
3. Section Length (m)	100	100	100	100					
4. Gradient	1	1.5	2	1					
5. Water Quality	3	3	3	3					
6. Water Width a. channel	9.7	12.2	10	9.2					
b. water	5.7	9.2	8.2	5.2					
c. special character	-	-	-	-					
7. Water Type % SS	25	15	25	30					
SF	70	85	75	70					
DS	5								
DF									
8. Undercut Banks (m) left	10	10	10	15					
right	10	10	15	15					
9. Debris Cover % small	1	1	5	5					
large	15	10	20	30					
10. Riparian Vegetation %	15	5	15	20					
11. Substrate %:									
a. boulders	15	30	30	20					
b. cobble	40	30	30	30					
c. gravel	30	15	15	20					
d. sand	15	25	25	30					
e. organic muck									
f. bedrock									
g. other									
12. ASA	20	5	5	5					
13. Gravel Shape	3	3	3	3					
14. Streambank Vegetation									
a. percentage	100	100	100	100					
b. type	B	B	B	B					
15. Average Depth (cm)	25	30	30	20					
16. Beaver Activity	5	5	5	5					
17. Potential Barrier	-	-	-	-					
18. Aquatic Vegetation									
a. type	1	1,3	1,3	1					
b. density	3	3	3	3					
19. Sampling	-	-	-	-					
20. Rearing Area	50	50	30	30					

21. Comments

Section 40: The survey was discontinued at the end of the Section. There has been no barrier, but rearing fish are only infrequently observed and the ASA is poor quality due to a heavy interstitial sand content and the compactness of the substrate.

FISH SAMPLING FORM

ADF&G No. 107-10-29 Date 6/23/84 Stream Name _____

Survey Area A H₂O Temp. 11°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0940	1615	1 CT 2 SS	125 mm. 75,80mm Section 4
2	0955	1010	Ø	Section 11
3	1000	1015	Ø	Section 11
4	1125	1155	Ø	Section 18
5	1125	1155	Ø	Section 18

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-50, B 1-19, C 1-7 2. Historical Fish PS,CS,SS,ST,CT,DV

Part II.

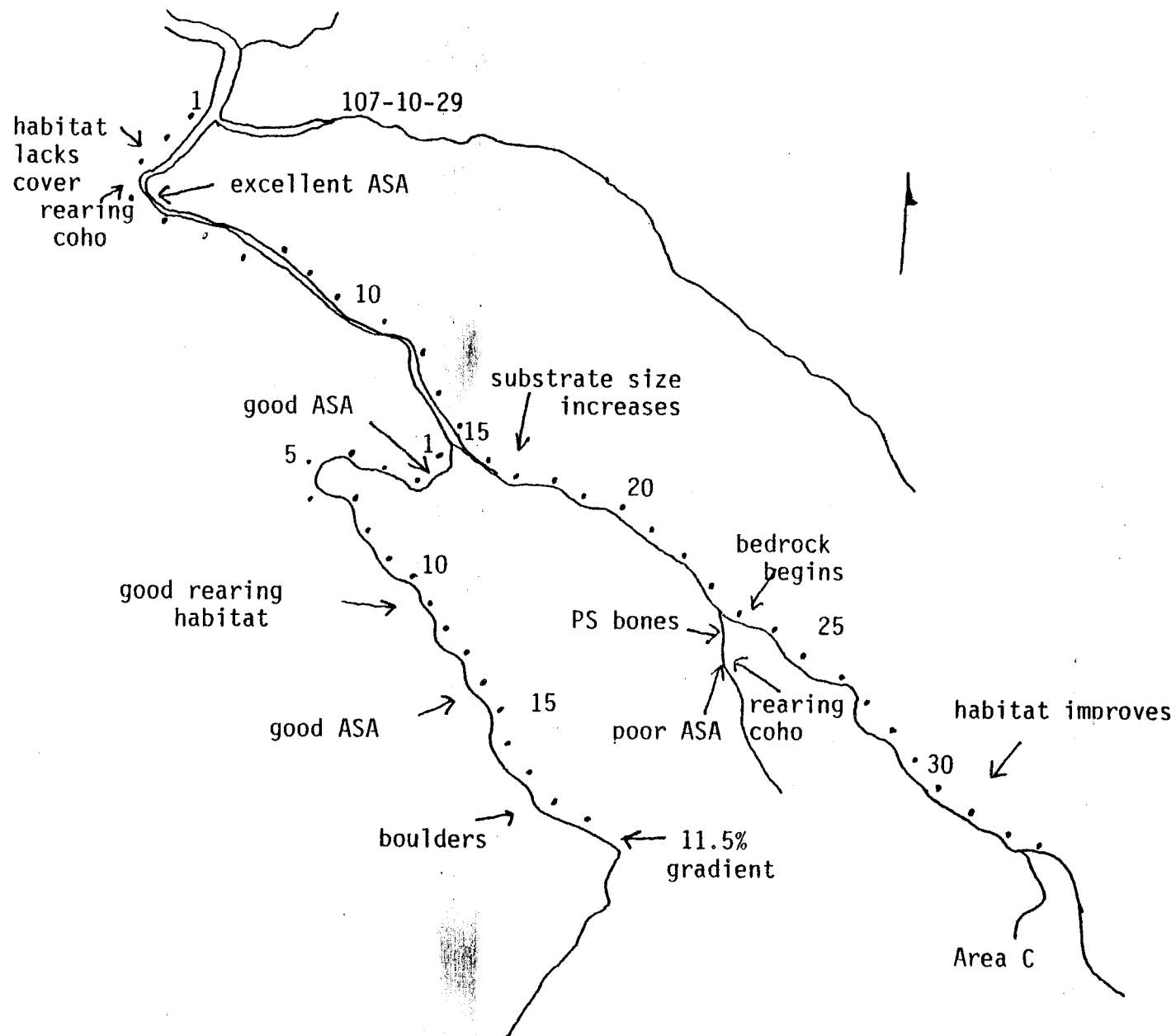
1. Stream Name Black Bear Creek 2. ADF&G Catalogue No. 107-10-30
 3. USGS Map No. Craig C-1 4. Legal Location R86E,T71S,S-12
 5. Latitude and Longitude 55°43'37",132°9'50" 6. Agency Unit 05
 7. Aerial Photo No. 0024,1873,215,9-14-73 02190 8. Mgmt. Area K29-709
 9. Estimated Flow 1 m³/sec 10. Flow Stage 2
 11. Land Use a. present trapline b. historical rigging site for cannery
 12. Temperature Sensitivity and/or origin 5,4,1
 13. Access 2 14. Stream Temperature 12°
 15. pH 7 16. Intertidal Zone _____ a. Gradient 1.5
 b. Bottom type 1. fines _____ 2. gravel/small cobble 100
 3. large cobble/boulders/bedrock _____
 c. ASA excellent - a 100 m. by 30 m. stretch with 99% ASA in the upper ITZ
 d. Schooling nice deep pool in upper ITZ
 e. Shellfish potential evidence of crab, clams, and cockles in Union Bay
 f. Anchorage Long tidal flat, Union Bay subject to high winds

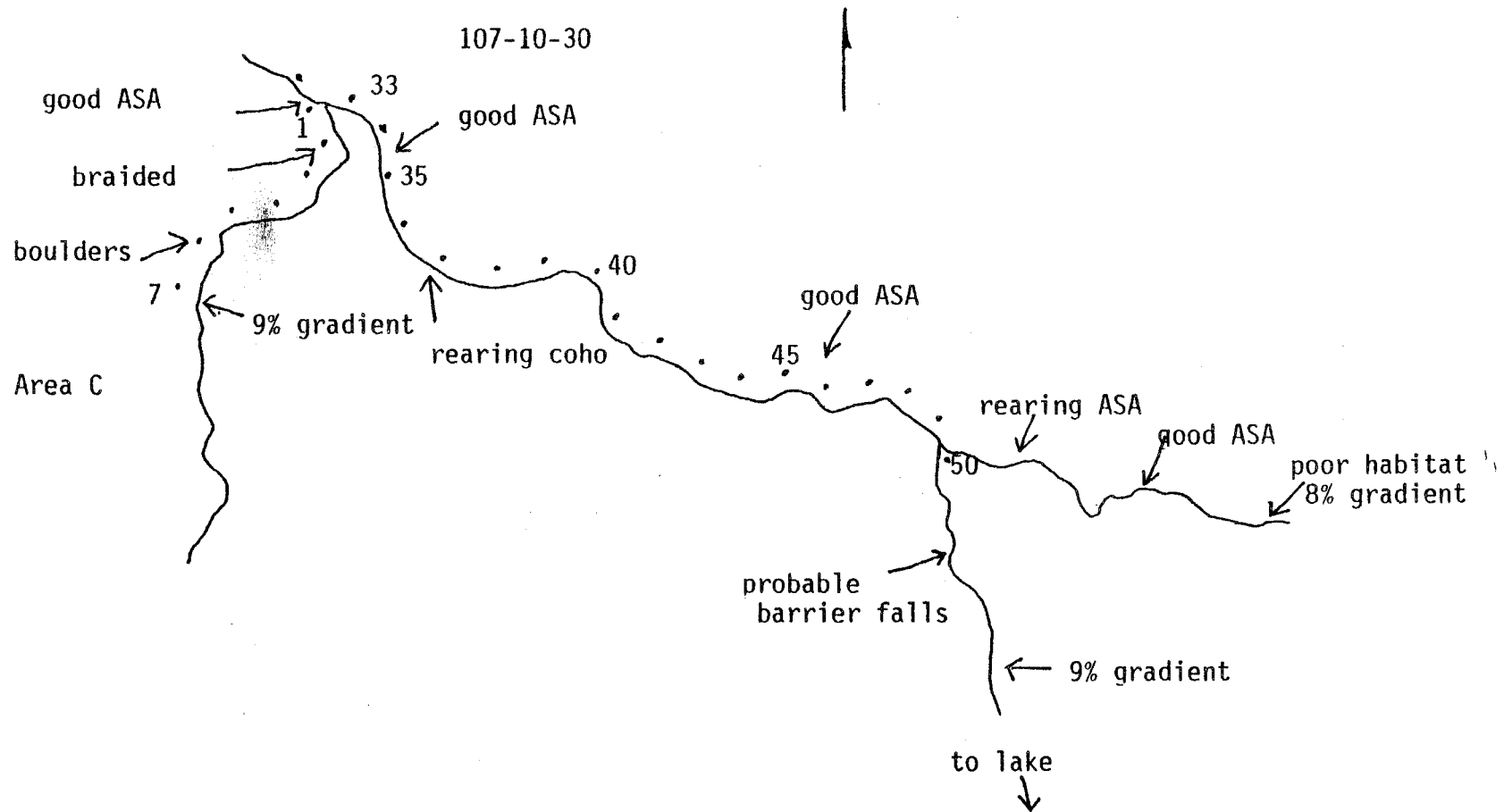
17. Comments

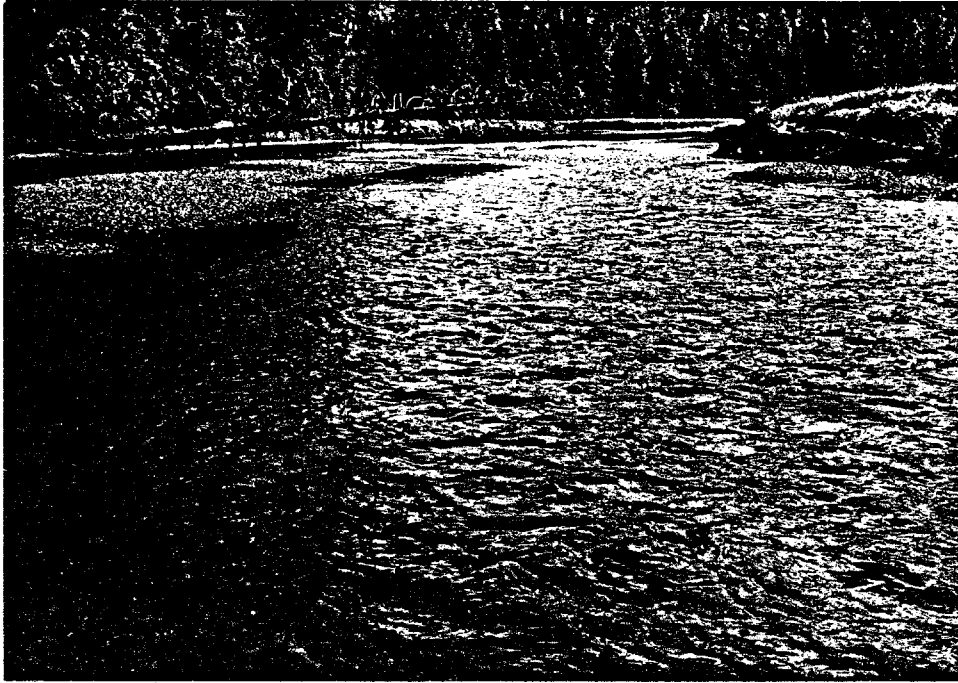
Ten Peterson disc tags and two "J" tags were recovered during the survey. 107-10-30 appears to be a very productive system. Excellent quality ASA is found in Sections 1 through 15 and 33 through 49 in Area A. Area B also contains almost a mile long stretch of good ASA. Smaller amounts of ASA are present in Area C and a small tributary from an old beaver area in Section 50. The rearing habitat is not exceptional quality, due to a lack of cover throughout most of the mainstem. The tributaries had heavy debris loads which provided more cover. Rearing coho were very abundant throughout the system except for the stretch of bedrock in Sections 16 through 32. More rearing coho were observed in this stream than any other system surveyed during the 1984 field system.

18. Investigators Burns/Cariello 19. Weather 3,1

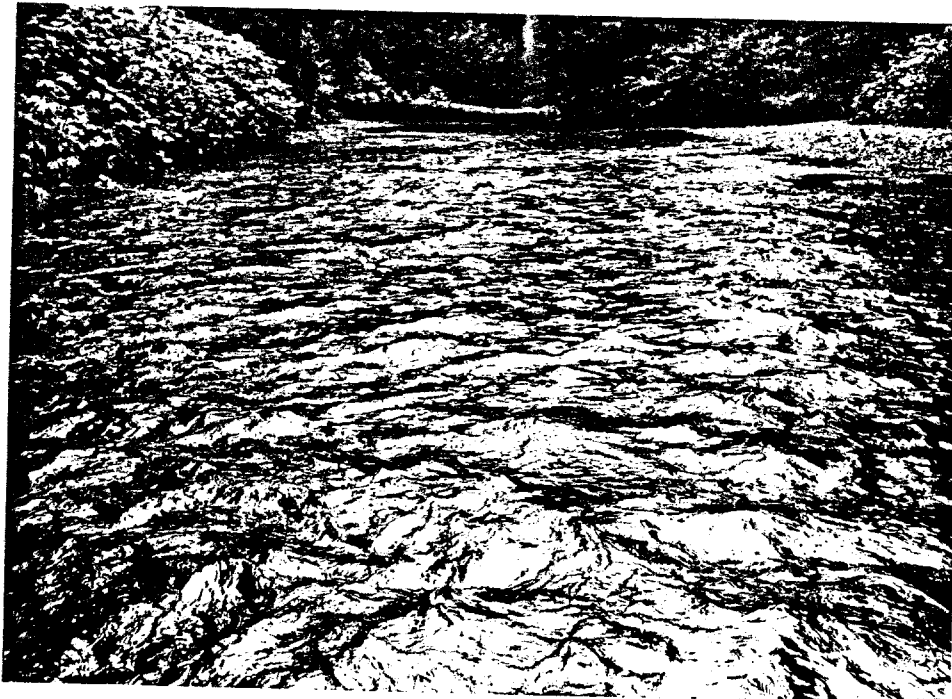
20. Date 6/19/84 - 6/22/84 -294- 21. Time 0800-1630, 0800-1700







1. Excellent riffle in the upper ITZ.



2. Excellent ASA in Section #14.



3. Section 29: Poor rearing and ASA were provided by the predominately bedrock substrate of Reach 4.



4. Section 48: Excellent ASA typical of Reach 5. Rearing coho were abundant also.



5. Section 50: Many rearing coho and a good stretch of ASA were found up this tributary.



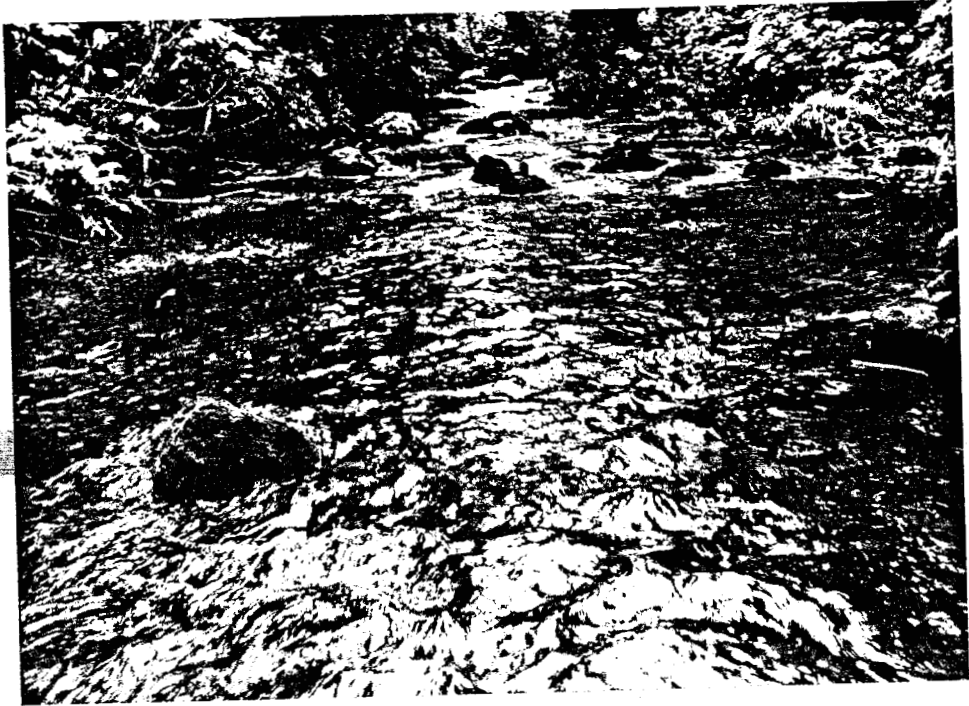
6. Section 50: The ASA and rearing habitat decline immensely at the end of the survey.



7. Section 7: Probable 4 m. stairstep falls 150 m. beyond Section 50.



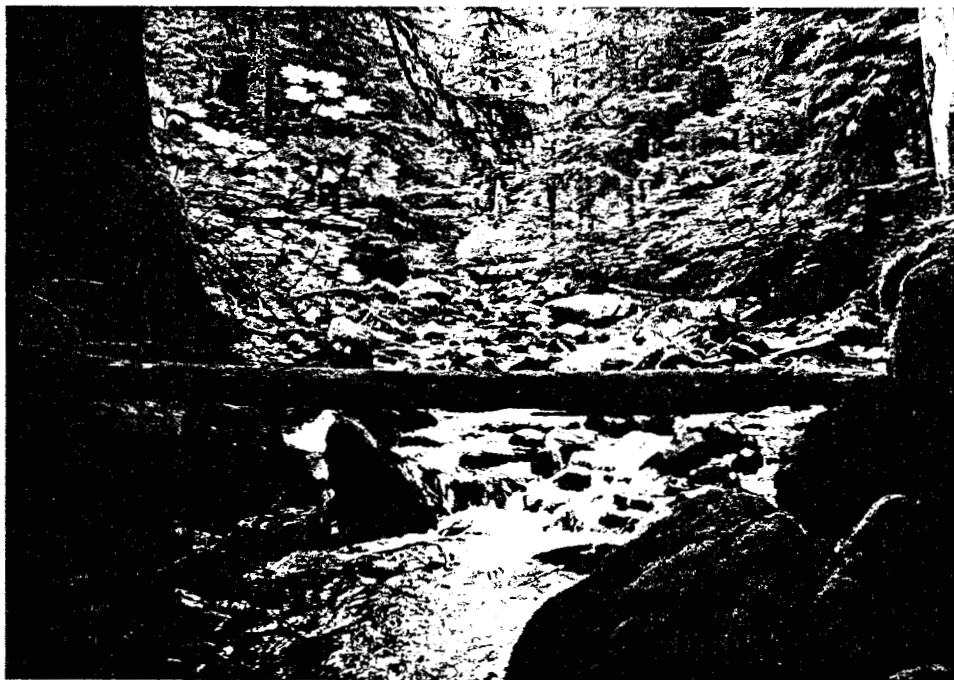
8. Large boulder and bedrock substrate 400 m. beyond Section 50.



1. Typical habitat in the lower reach.



1. Section 2: Typical large cobble substrate in the ASA of the lower reach.



2. Section 7: Large boulder substrate at the end of the survey.

107-10-30

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	16	70	1120					
2	100	19	20	380					
3	100	11	60	660					
4	100	13	80	1040					
5	100	18	10	180					
6	100	16	50	800					
7	100	31	30	930					
8	100	23	40	920					
9	100	23	20	460					
10	100	9	20	180					
11	100	9	75	675					
12	100	11	65	715					
13	100	11.5	60	690					
14	100	12	75	900					
15	100	12	25	300					
16	100	10	25	250					
17	100	10	10	100					
18	100	12	1	12					
19	100	12	10	120					
20	100	12	10	120					
21	100	15	0	0					
22	100	17	5	85					
23	100	16	1	16					
24	100	13	1	13					
25	100	10.7	1	10.7					
26	100	8.2	5	41					
27	100	11.7	1	11.7					
28	100	9.3	1	9.3					
29	100	16	0	0					
30	100	9	1	9					
31	100	9.6	25	240					
32	100	13	5	65					
33	100	10	50	500					
34	100	14.5	30	435					
35	100	14.5	60	870					
36	100	19	55	1045					
37	100	17	40	680					
38	100	10.5	60	630					
39	100	13.5	60	810					
40	100	10.5	40	420					
41	100	15	60	900					
42	100	7.3	50	365					
43	100	9.5	65	617.5					
44	100	10.3	65	669.5					
45	100	17	70	1190					
46	100	12.5	75	937.5					
47	100	11	80	880					
48	100	17.1	80	1368					
49	100	5.7	30	171					
50	100	12	5	75					

Total Area A ASA

23,616.2m²

107-10-30

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	2.5	15	37.5	1	100	8.1	30	243
2	100	3.8	15	57	2	100	8	30	240
3	100	5.6	10	56	3	100	10	20	200
4	100	5.8	1	5.8	4	100	9	10	90
5	100	4.8	20	96	5	100	6.3	1	6.3
6	100	5.4	5	27	6	100	3.2	1	3.2
7	100	5.4	1	5.4	7	100	6.7	0	0
8	100	6	15	90	Total Area "C" ASA				782.5m ²
9	100	7	50	350					
10	100	6.2	50	310					
11	100	3.8	30	114					
12	100	8	30	240					
13	100	17.5	40	700					
14	100	4.8	30	144					
15	100	7	30	210					
16	100	6.5	65	422.5					
17	100	5	50	250					
18	100	7.2	5	36	Total Area "B" ASA				3,151.2m ²
19	100	7.2	0	0					

Total Area "B" ASA

3,151.2m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/22/84
Area A

1. Reach	1	1	1	1	1	1	1	1	1
2. Section	1I	2I	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1	1	1	1	.75	.75	.75	.75	.75
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	27.5	29	20	20	32	26	31	23	36
b. water	16	19	11	13	18	16	31	23	23
c. special character			3						
7. Water Type % SS	15	65	40	20	80	50	65	70	80
SF	85	25	59	80		50	30	30	10
DS		10	1				5		10
DF					20				
8. Undercut Banks (m) left	0	0	0	15	30	50	10	60	10
right	0	0	15	1	0	30	1	20	15
9. Debris Cover % small	0	0	0	0	1	1	1	1	0
large	0	0	1	1	1	15	1	1	1
10. Riparian Vegetation %	0	0	0	5	15	10	1	10	1
11. Substrate %:									
a. boulders		25							5
b. cobble	15	25	35	40	40	30	40	40	40
c. gravel	70	35	50	50	50	60	50	50	40
d. sand	15	15	15	10	10	10	10	10	10
e. organic muck									
f. bedrock									5
g. other									
12. ASA	70	20	60	80	10	50	30	40	20
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	A	A	B	A	A	A	A	A
15. Average Depth (cm)	13	10	41	13	10	30	15	18	18
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	2/3	2/3	2/3	2/3	2/3	2/3	2	2/3	2/1.3
b. density	1/3	1/3	1/2	2/2	2/2	2/3	1	1/3	1/3
19. Sampling	-	-	-	-	-	-	-	-	Y
20. Rearing Area	10	50	30	20	60	50	70	60	80
21. Comments									

Section 1: Survey was started at the mouth of 107-10-29 near the upper end of their common ITZ. The ASA is excellent quality. The rearing habitat lacks cover in this Section and throughout the reach. There is little debris, undercut banks, or overhanging vegetation.

Section 2: Schools of rearing coho were observed. A good riffle provides ASA for 20 m. before the stream enters a pool with boulders and cobble substrate. The rearing coho were utilizing the boulders in this low velocity area for cover. Old logging sign was evident on the banks.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: Rearing coho were abundant throughout the reach. A large back water area is present to the right which could provide rearing area at high water stages. It is too shallow and lacks enough cover to be good rearing habitat at the present flow. A good riffle provides excellent ASA.

Section 5: Good gravel substrate is present, but the water velocity is insufficient for ASA at a normal flow stage. Cover is present only along the left bank.

Section 9: A group of possible steelhead redds were observed.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/22/84

1. Reach	2	2	2	2	2	3	3	3	3
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1.5	1.5	2	1.5	2	1.5	1.5	1.5	2.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	22	15	19.5	22	23	15	17	20	15
b. water	9	9	11	11.5	12	12	10	10	12
c. special character	-	-	-	-	1	-	-	-	-
7. Water Type % SS	40	30	25	20	20	35	35	65	25
SF	50	70	70	80	80	60	60	25	65
DS	10		5			5	5	10	10
DF									
8. Undercut Banks (m) left	20	30	1	10	10	15	20	10	1
right	0	5	50	0	0	10	1	0	0
9. Debris Cover % small	1	0	1	1	1	1	1	1	0
large	1	1	3	1	5	5	1	1	5
10. Riparian Vegetation %	10	5	5	1	5	5	5	5	5
11. Substrate %:									
a. boulders	15				10	35	40	45	60
b. cobble	35	30	40	50	40	30	25	20	20
c. gravel	40	60	50	40	40	25	25	15	10
d. sand	10	10	10	10	10	10	10	10	10
e. organic muck									
f. bedrock									
g. other									
12. ASA	20	75	65	60	75	25	25	10	1
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	A	B	B	B	B	B	B	B
15. Average Depth (cm)	18	15	13	25	20	15	13	10	13
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	2,1	2	2/3	2/3	2/3	2/3	2/1,3	2/1	2/1
b. density	2	1	1/3	1/3	1/3	2/3	1/3	1/3	1/3
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area	80	50	50	40	30	50	50	40	50
21. Comments									

Section 10: The gradient increases slightly and the stream channel narrows.
 Section 11: Possible pre-emergent markers are present on the right bank. Two Peterson disc tags were found.
 Section 12: A deep pool at the end of the Section provides rearing as well as being a possible holding area.
 Section 13: The rearing habitat continues to lack much cover of any type.
 Section 14: A large tributary surveyed as Area B enters from the right bank at the start of the Section. Some braiding is present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 15: The ASA decreases as the substrate size increases. More deep pool areas are available in this reach.

Section 18: A large deep pool is present midway through the Section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/22/84 - 6/19/84
Area A

1. Reach	3	4	4	4	4	4	4	4	4
2. Section	19	20	21	22	23	24	25	26	27
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1.5	1.25	1.5	1	2	2	2.5	4.5	4
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	15	14	15	17	20	18.5	16	20	14
b. water	12	12	15	17	16	13	10.7	8.2	11.7
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	30	20	10	30	15	15	10	10	15
SF	70	80	90	70	85	85	90	75	75
DS								5	5
DF								10	5
8. Undercut Banks (m) left	0	10	1	0	5	0	5	0	0
right	1	20	1	15	0	0	0	0	0
9. Debris Cover % small	0	0	0	0	0	0	0	0	0
large	0	0	0	0	0	1	1	5	1
10. Riparian Vegetation %	5	1	1	5	15	15	10	5	5
11. Substrate %:									
a. boulders	50	55	65	40	70	30	15	70	10
b. cobble	25	25	20	30	10	10	10	5	5
c. gravel	15	15	10	20	5	8	5	3	3
d. sand	5	5	5	5	5	2	1	2	2
e. organic muck									
f. bedrock	5			5	10	50	69	20	80
g. other									
12. ASA	10	10	0	5	1	1	1	5	1
13. Gravel Shape	3	3	3	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	13	15	13	13	15	17	25	25	20
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	2/1	2/14	2/1,4	2/1	1,3	1,3	1,3	1,3	1,3
b. density	1/3	1/3	1/3	1/3	1	1	1	1	1
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area	60	50	50	60	15	15	15	15	15
21. Comments									

Section 19: A Peterson disc tag was recovered. Icing scars were observed on alder along the bank.

Section 20: The stream is slowly evolving into another habitat type as the ASA decreases and the substrate changes to boulder and bedrock by Section 23.

Section 22: A small dark tributary with an estimated flow of .015 to .025 m³/sec. enters from the right bank near the end of the Section. The water temperature was 11.5°C. The tributary is 2.5 m. in width and averages 7 to 10 cm. deep. A heavy moss growth is present over the substrate in places. Minimal amounts of very poor

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 22, continued: ASA are present due to the silty, compact nature of the cobble substrate. There are abundant salmon bones on the bank however, and rearing coho are abundant. The tributary provide rearing habitat for about 400. The water velocity is very sluggish and it does not appear that an increased water flow will improve the fisheries habitat much.

Section 23: A small tributary enters from the left bank near the start of the Section. The water temperature was 9.5°C and the pH was 7. The substrate is moss covered boulders and there is no ASA present. Sections 23 through 50 were surveyed on 6/19/84.

Section 24: Two more Peterson disc tags were recovered in this Section. The bedrock substrate and increased gradient combine to provide little ASA or rearing habitat.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/19/84

1. Reach	4	4	4	5	5	5	5	5	5
2. Section	28	29	30	31	32	33	34	35	36
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	5	5	3	2	2	1.5	1.5	1.5	1.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	16.7	20.1	14.3	9.6	15.6	19	21.9	15	27
b. water	9.3	16	9	9.6	13	10	14.5	14.5	19
c. special character	-	-	-	-	-	-	3	3	3
7. Water Type % SS	10	10	10	15	20	45	40	50	30
SF	70	80	80	75	75	50	50	40	70
DS	10					5	10	10	
DF	10	10	10	10	5				
8. Undercut Banks (m) left	0	0	0	10	10	80	10	10	10
right	0	0	0	5	0	10	60	50	50
9. Debris Cover % small	0	0	0	0	0	0	1	1	0
large	1	2	1	1	1	3	5	3	1
10. Riparian Vegetation %	10	15	15	15	15	15	15	10	5
11. Substrate %:									
a. boulders	5			1					
b. cobble	3			5	1		5	5	
c. gravel	2		1	59	74	75	70	75	75
d. sand	1		1	10	20	25	25	20	25
e. organic muck									
f. bedrock	89	100	98	25	5				
g. other									
12. ASA	1	0	1	25	5	50	30	60	55
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	25	25	17	17	10	10	10	18	12
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1,3	1,3	1/3	1,3	3/1,2	2,3	2,3	3/1,2	3/2
b. density	1	1	1/2	2	2/3	2	2	2/3	2/3
19. Sampling	-	-	-	-	-	Y	-	-	-
20. Rearing Area	15	15	15	20	30	40	50	40	40
21. Comments									

Section 28: A debris falls is present, but is not a barrier. It could be a hinderance at low flow.

Section 30: Moss growth is heavy.

Section 31: The gradient decreases and both the ASA and rearing habitat improve in quality. Fontinalis is present in Sections 31 and 32.

Section 32: A tributary surveyed as Area C enters from the right bank at the end of the Section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 33: Large numbers of rearing coho were observed throughout Reach 5. The rearing habitat is improved over the bedrock stretch in Reach 4, but still lacks enough debris or overhanging riparian vegetation to provide excellent rearing habitat. A Peterson disc tag was recovered. Excellent substrate provides exceptional ASA in this reach.

Section 34: Green algae is heavy in the slow shallow areas. This reach contains many small back water areas which contain rather stagnant water at the present flow, but could provide sheltered areas at high water flows.

Section 35: A small feeder tributary, 90C, enters from the right bank. Coho were utilizing it for rearing area.

Section 36: A stickleback is observed. Another small tributary enters from the right bank and providing rearing habitat to coho.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/19/84
Area A

1. Reach	5	5	5	5	5	5	5	5	5
2. Section	37	38	39	40	41	42	43	44	45
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1.5	1.5	1.5	1.5	2	2	2.5	2.5	2.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	18	21	21.4	15.5	18	10.5	15	11.3	17
b. water	17	10.5	13.5	10.5	15	7.3	9.5	10.3	17
c. special character	-	-	-	1	-	-	-	-	-
7. Water Type % SS	45	35	35	20	20	25	25	40	30
SF	45	35	45	40	70	50	75	60	70
DS	10	30	20	20	10	25			
DF									
8. Undercut Banks (m) left	10	15	20	20	30	60	60	20	20
right	50	15	15	20	30	40	20	20	20
9. Debris Cover % small	0	1	1	2	1	1	1	1	-
large	1	5	8	10	5	6	3	1	-
10. Riparian Vegetation %	10	15	20	25	15	20	15	15	15
11. Substrate %:									
a. boulders					5	5	10	10	10
b. cobble									
c. gravel	75	75	75	75	80	75	80	80	80
d. sand	25	25	25	25	15	20	10	10	10
e. organic muck									
f. bedrock									
g. other									
12. ASA	40	60	60	40	60	50	65	65	70
13. Gravel Shape	2	2	2	2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	13	15	20	15	12	30	45	11	11
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2	3/2
b. density	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3
19. Sampling	-	-	Y	-	-	-	-	-	-
20. Rearing Area	50	50	40	65	50	60	50	50	40

21. Comments

Section 37: Good gravel is present, but the velocity of the stream is too slow to allow it to be fully utilized as ASA.

Section 40: Large debris creates some braiding. A large patch of blue clay is present on the left bank and stream bottom.

Section 41: A Peterson disc tag was recovered.

Section 43: A small feeder tributary enters from the right bank. There continues to be a lack of cover although rearing coho are plentiful.

Section 44: A small tributary enters from the right bank. It is very steep and no ASA is provided.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/19/84

Area A

1. Reach	5	5	5	5	6				
2. Section	46	47	48	49	50				
3. Section Length (m)	100	100	100	100	100				
4. Gradient	2.5	2.5	2.5	2.5	3				
5. Water Quality	1	1	1	1	1				
6. Water Width a. channel	12.5	12.5	23.5	7.2	18.9				
b. water	12.5	11	17.1	5.7	15				
c. special character		1	1	1	1				
7. Water Type % SS	25	50	30	30	30				
SF	75	50	70	70	70				
DS									
DF									
8. Undercut Banks (m) left	50	50	60	60	70				
right	50	50	30	10	20				
9. Debris Cover % small	0	0	0	0	0				
large	0	0	2	0	0				
10. Riparian Vegetation %	15	20	10	10	10				
11. Substrate %:									
a. boulders			1	25	45				
b. cobble	15	50	49	59	45				
c. gravel	65	40	40	15	5				
d. sand	20	10	10	10	5				
e. organic muck									
f. bedrock									
g. other									
12. ASA	75	80	80	30	5				
13. Gravel Shape	2	2	2	2	2				
14. Streambank Vegetation									
a. percentage	100	100	100	100	100				
b. type	B	B	B	B	B				
15. Average Depth (cm)	12	10	15	25	15				
16. Beaver Activity	5	5	5	5	5				
17. Potential Barrier	-	-	-	-	-				
18. Aquatic Vegetation									
a. type	3/2	3/2	3/2	3/2	3/2				
b. density	2/3	2/3	2/3	2/3	2/3				
19. Sampling	-	-	Y	-	-				
20. Rearing Area	25	25	40	45	30				
21. Comments									

Section 46: Several possible steelhead redds are present.

Rearing coho are abundant.

Section 47: A flood channel to the right could provide ASA at high water stages. A yellow "J" tag was recovered. The stream begins to braid.

Section 48: The braiding continues with excellent ASA present.

Section 49: The substrate is starting to get more compact and the ASA quality is decreasing. Rearing coho are still abundant.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 50: Another Peterson disc tag was recovered. A high water channel is present to the right for a short distance. A .03 to .04 m³/sec tributary enters from the left bank at the end of the Section. About 250 m. up this shallow tributary is an old beaver dam in poor repair. This 250 m. stretch was 3 to 4 m. in width and contained 25% ASA. Many rearing coho were observed. There was a good debris load and riparian vegetation cover. Above the beaver dam was a 150 m. stretch with 40% ASA. The stream width continued at 3 to 4 m. and the gradient increased to 4%. Many coho fry were observed. The gradient increased to 8% shortly beyond here and the substrate became boulder/cobble. The mainstem survey was discontinued at the end of Section 50. A reconnaissance above here found that the substrate became primarily boulders with only patches of ASA. A stairstep falls with an overall height of 4 m. is present 150 m. beyond the end of the survey. The falls is a probable barrier. There is little rearing area and no rearing fish were observed above the falls. The gradient increases to 9% about 250 m. further upstream and the fisheries habitat diminishes greatly.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/22/84

Area B

1. Reach	1	1	1	2	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2	2	2	4	5	6	2.5	4.5	2.5
5. Water Quality	1	1	1	1	1	1	1	1	1
6. Water Width a. channel	6	6.2	8.6	8.2	6	9.4	10	7	7
b. water	2.5	3.8	5.6	5.8	4.8	5.4	5.4	6	7
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	30	30	30	20	30	30	30	20	45
SF	70	60	65	80	70	70	70	80	45
DS		10	5						10
DF									
8. Undercut Banks (m) left	5	10	5	10	15	5	0	10	10
right	10	10	15	10	15	10	0	30	10
9. Debris Cover % small	1	2	2	2	1	1	1	1	1
large	5	20	15	20	10	5	1	3	10
10. Riparian Vegetation %	5	10	10	15	10	5	10	15	10
11. Substrate %:									
a. boulders	30	40	50	70	45	50	60	30	5
b. cobble	30	30	30	20	25	20	10	30	50
c. gravel	25	20	10	15	20	15	10	20	35
d. sand	10	10	5	5	5	5	5	10	10
e. organic muck									
f. bedrock	5		5		5	10	15	10	
g. other									
12. ASA	15	15	10	1	20	5	1	15	50
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	10	41	5	15	18	10	10	38	8
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3	3/1	3/1	3	3	3	3/1	3	3
b. density	3	2/3	1/3	1	2	1	1/3	1	1
19. Sampling	Y	-	-	-	-	-	-	-	Y
20. Rearing Area	50	60	40	40	50	30	30	50	50
21. Comments									

Section 1: The flow was estimated at .3 m.³/sec and the water temperature was 10.5°C. Rearing coho were abundant. A yellow "J" disc tag was found. The ASA is excellent quality.

Section 2: A .5 m. debris dam is present. A Peterson disc tag was found. A heavy debris load is providing cover and pool area.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: The gradient increases and patches of bedrock in the substrate were observed and there is little ASA as the substrate size increases.

Section 5: A good stretch of ASA is present.

Section 6: The substrate size continues to be large with a large number of boulders present. The rearing area lacks good cover in Sections 6 through 8.

Section 8: Good quality ASA is present in the last half of the Section.

Section 9: The stream is braided and alder is growing on the banks. Substantial amounts of ASA continue through this reach.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/22/84
Area B

1. Reach	3	3	3	3	3	3	3	3	4
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1.5	7	2	2	3	1.5	2	1.5	3.5
5. Water Quality	1	1	1	1	1	1	1	1	1
6. Water Width a. channel	9	9.8	9	23	7.8	9	9.5	10	15
b. water	6.2	3.8	8	17.5	4.8	7	6.5	5	7.2
c. special character	-	1	-	-	-	-	-	-	-
7. Water Type % SS	40	30	30	20	30	35	30	30	20
SF	50	69	70	80	70	60	70	70	80
DS	10	1				5			
DF									
8. Undercut Banks (m) left	10	10	30	5	5	15	40	5	10
right	10	60	5	5	50	10	10	15	1
9. Debris Cover % small	1	10	1	5	1	1	1	1	1
large	5	40	10	30	5	5	5	5	3
10. Riparian Vegetation %	15	60	15	70	10	20	20	10	5
11. Substrate %:									
a. boulders					5	5	5	10	70
b. cobble	55	60	60	65	60	60	60	60	20
c. gravel	35	30	30	30	30	30	30	30	10
d. sand	10	10	10	5	5	5	5	5	
e. organic muck									
f. bedrock									
g. other									
12. ASA	50	30	30	40	30	30	65	50	5
13. Gravel Shape	3	3	3	3	3	3	3	3	3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	5	10	13	8	10	8	25	8	8
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3/2	3	3	3	3	3	3	3	3/1
b. density	1/3	1	1	1	1	1	1	1	1/3
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area	50	60	70	50	50	60	30	30	20

21. Comments

Section 10: Good pool area.

Section 11: A heavy debris loading and riparian vegetation provide excellent cover for rearing. There is some braiding present.

Section 12: A small trickle tributary enters from the right bank. The tributaries substrate is cobble and gravel and at a higher flow good quality ASA would be provided. Rearing coho are utilizing it for rearing habitat.

Section 13: The stream is severely braided into three channels for 65 m. Rearing coho were abundant.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 14: The debris loading decreases and the substrate size begins to increase slightly.

Section 16: An excellent stretch of ASA is present.

Section 17: The rearing habitat is lacking in cover and is not good quality. The substrate size continues to increase to large cobble and boulder size.

Section 18: A small tributary with a substrate of large boulders enters from the right bank. The mainstem's substrate turns to primarily boulders in this Section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/22/84
 Area B

1. Reach	4								
2. Section	19								
3. Section Length (m)	100								
4. Gradient	11.5								
5. Water Quality	1								
6. Water Width a. channel	7.2								
b. water	7.2								
c. special character	-								
7. Water Type % SS	20								
SF	80								
DS									
DF									
8. Undercut Banks (m) left	15								
right	15								
9. Debris Cover % small	1								
large	1								
10. Riparian Vegetation %	5								
11. Substrate %:									
a. boulders	40								
b. cobble	15								
c. gravel	5								
d. sand									
e. organic muck									
f. bedrock	40								
g. other									
12. ASA	0								
13. Gravel Shape	3								
14. Streambank Vegetation									
a. percentage	100								
b. type	B								
15. Average Depth (cm)	5								
16. Beaver Activity	5								
17. Potential Barrier	-								
18. Aquatic Vegetation									
a. type	3/1								
b. density	1/3								
19. Sampling	-								
20. Rearing Area	10								
21. Comments									

Section 19: The survey was discontinued at the end of the Section. The substrate is predominately bedrock and large boulders. The gradient is increasing and there is little if any ASA or rearing area present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Black Bear Creek ADF&G No. 107-10-30 Date 6/19/84
 Area C

1. Reach	1	1	1	1	2	2	2
2. Section	1	2	3	4	5	6	7
3. Section Length (m)	100	100	100	100	100	100	100
4. Gradient	3.5	3.5	3.5	4	6	8	9
5. Water Quality	1	1	1	1	1	1	1
6. Water Width a. channel	11	9.3	17.3	23	7.7	4.3	8.6
b. water	8.1	8	10	9	6.3	3.2	6.7
c. special character	1	1	1	1	1		
7. Water Type % SS	15	10	15	15	15	5	5
SF	75	80	75	75	80	90	90
DS	10	10	10	10	5	5	5
DF							
8. Undercut Banks (m) left	40	40	60	60	10	10	0
right	20	40	60	60	40	10	0
9. Debris Cover % small	3	3	5	5	5	5	0
large	15	20	25	30	25	10	5
10. Riparian Vegetation %	1	1	20	30	50	80	90
11. Substrate %:							
a. boulders	1	1	20	30	50	80	90
b. cobble	40	59	60	59	40	15	5
c. gravel	49	35	15	10	10	5	5
d. sand	10	5	5	1			
e. organic muck							
f. bedrock							
g. other							
12. ASA	30	30	20	10	1	1	0
13. Gravel Shape	2	2	2	2	2	2	2
14. Streambank Vegetation							
a. percentage	100	100	100	100	100	100	100
b. type	A	A	A	A	B	B	B
15. Average Depth (cm)	10	12	45	15	15	12	20
16. Beaver Activity	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-
18. Aquatic Vegetation							
a. type	2/3	2/3	2/3	2/3	2/3	2/3	2/3
b. density	3/2	3/2	3/2	3/1	3/1	3/1	3/1
19. Sampling	-	-	-	-	-	-	-
20. Rearing Area	30	35	20	20	15	10	10
21. Comments							

Section 1: The ASA substrate is primarily loose cobble. Braiding within the channel and a heavy blowdown load is present. Good numbers of rearing coho were observed. A Peterson disc tag was found. The flow is estimated at .25 m³/sec. and the temperature and pH were 7.5°C and 7 respectively.
 Section 2: The braiding continues through the large debris present. A patch of blue clay was observed.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: The stream braids into three channels and is difficult to follow in the heavy debris load through Section 4.

Section 5: The numbers of rearing coho observed decreased. The gradient increases and the substrate beings turning to primarily boulders. Dolly Varden fry, many having just recently absorbed the yolk sac, are abundant.

Section 6: Salmon bones were found on the bank.

Section 7: The survey was discontinued at the end of the Section. The gradient has increase substantially and the fisheries habitat has diminished. There has been no barrier observed yet, but there is little ASA or rearing habitat present.

FISH SAMPLING FORM

ADF&G No. 102-80-30 Date 6/22/84 Stream Name Black Bear Creek
 Survey Area Area A H₂O Temp. 12°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0930	0945	SS-38mm	Section 9-38mm
2	0930	0945	Ø	Section 9 SS observed in trap, but escap

FISH SAMPLING FORM

ADF&G No. 107-10-30 Date 6/19/84 Stream Name Black Bear Crk
Survey Area A H₂O Temp. 11°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0800	0815	6 SS-40mm	set in beaver dam area on tributary to left in Section 50
2	0935	0955	1 SS	Section 48
3	1203	1218	5 SS 5 CT	Section 39
4	1225	1240	3 SS	Section 33

FISH SAMPLING FORM

AUF&G No. 107-10-30 Date 6/22/84 Stream Name Black Bear Creek

Survey Area Area E H₂O Temp. 10.5 Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1040	1540	CT	Section 1

FISH SAMPLING FORM

ADF&G No. 102-80-30 Date 6/22/84 Stream Name Black Bear Creek

Survey Area A H₂O Temp. 12°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0930	0945	SS 38 mm	Section 9 38 mm.
2	0930	0945	Ø	Section 9 SS observed in trap, but escaped

FISH SAMPLING FORM

ADF&G No. 107-10-30 Date 6/19/84 Stream Name Black Bear Crk
 Survey Area A H₂O Temp. 11°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0800	0815	all about 40mm 6 SS	Set in beaver dam area on tributary to left in Sec. 50
2	0935	0955	1SS	Section 48
3	1203	1218	5SS-5CT	Section 39
4	1225	1240	3 SS	Section 33

FISH SAMPLING FORM

ADF&G No. 107-10-30 Date 6/22/84 Stream Name Black Bear Crk

Survey Area B H₂O Temp. 10.5 Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1040	1540	CT	Section 1

PEAK ESCAPEMENT RECORD

107-10-30

DATE	PINK	CHUM	OTHER SPECIES	REMARKS
8/25/60	4,000			
9/1/61	2,400			
8/21/63	41,000			
8/19/65	26,000			
8/17/66	53,500			
8/21/67	650			
8/19/68	8,500			
8/26/69	10,000			
8/20/70	14,000			
8/21/71	86,800	100	600 coho	
9/11/72	19,690	77		
8/22/73	28,000			
8/27/74		1,000		
9/4/74	18,000			
8/27/75	25,800			
8/29/76	50,500			
8/19/77	95,000			
8/28/78	47,750			
9/3/78		105		
8/1/79	35,000			
8/3/79		70		
8/19/80	57,000			
10/13/80			3 coho	
8/25/81	26,910	20		
9/14/82		27		
9/24/82	63,730			
9/29/82		45		

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-5 B 1-5 2. Historical Fish

Part II.

1. Stream Name Union Bay #5 2. ADF&G Catalog No.

3. USGS Map No. Craig C-1 4. Legal Location R86E,T71S,S-11

5. Latitude and Longitude 55°43'42" 132°11'05" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,215,9-14-73,02190 8. MGMT Area K29-709

9. Estimated Flow .15m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,4,1

13. Access 2 14. Stream Temperature 11.5°C

15. pH 6.5 16. Intertidal Zone a. Gradient 2.5

b. Bottom type 1. fines 10 2. gravel/small cobble 45

3. large cobble/boulders/bedrock 45

c. ASA poor-the only usable gravel was in the lower ITZ

d. Schooling only in Union Bay

e. Shellfish potential evidence of clams, cockles, and crab

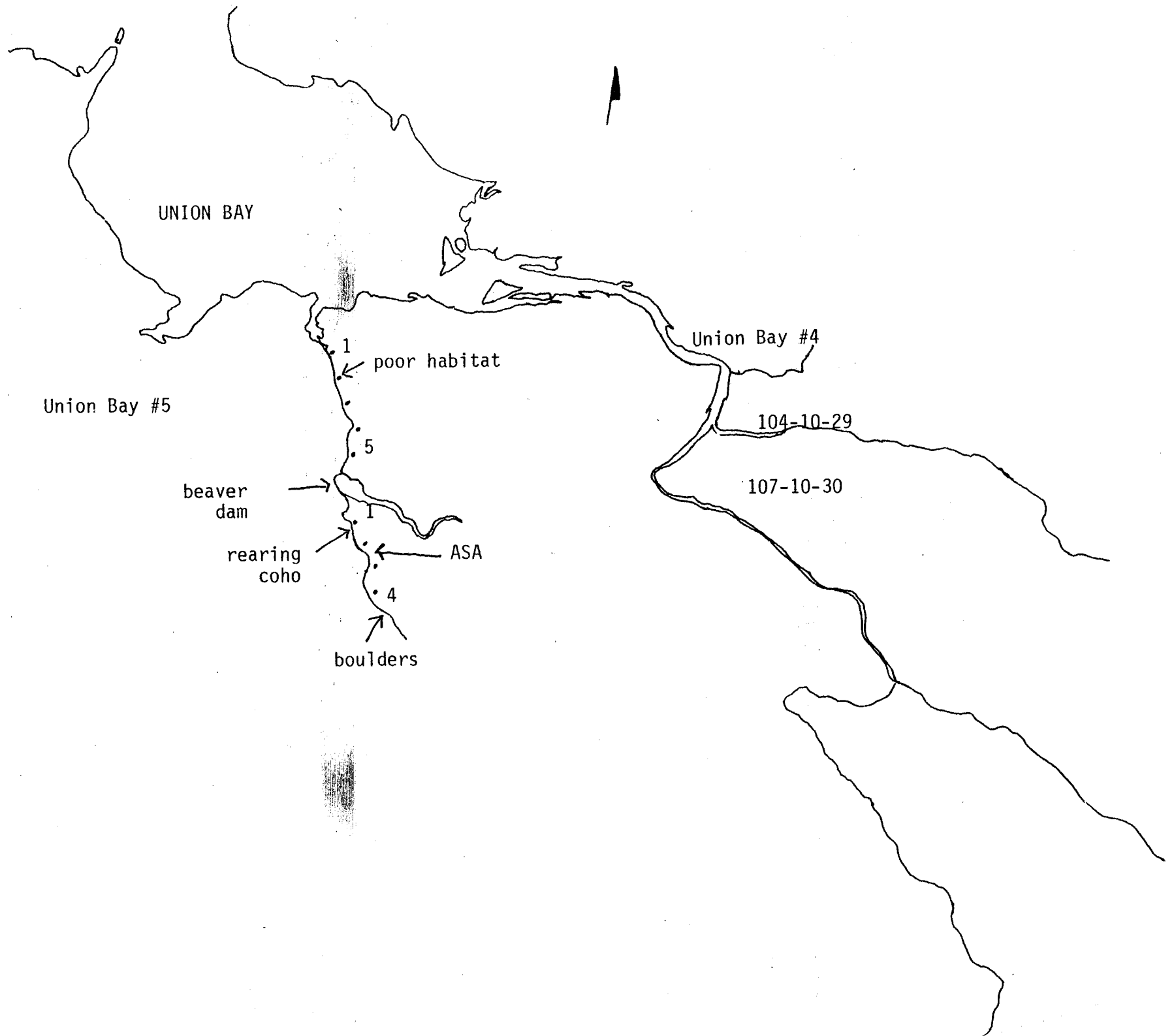
f. Anchorage fair - extensive tidal flat

17. Comments

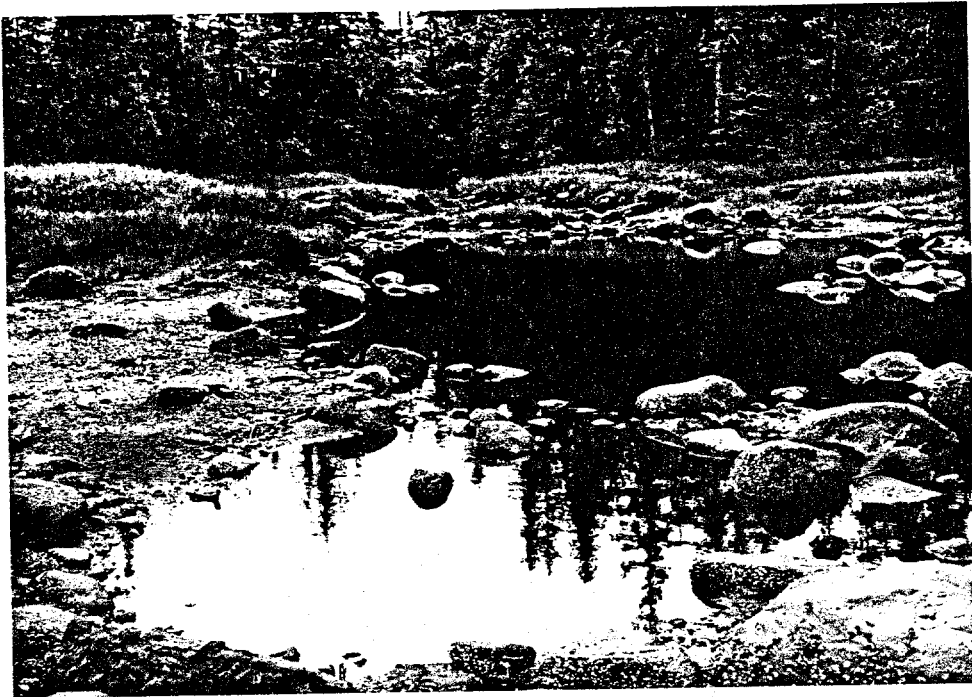
Area A was surveyed 6/24/84 and Area B 8/12/84. Rearing coho were observed in the ITZ. Both deer and bear sign were observed. Union Bay #5 has little potential up to a beaver dam about 500 m. above the ITZ. Area A has a substrate of primarily boulders and bedrock that provides little ASA. The rearing habitat in Area A is not good quality either, due to a lack of debris or undercut banks. Only a few rearing fish were observed in the first five Sections. Area B is a tributary to the large active beaver dam area. There is about 400 m. of fair quality ASA in Area B. There is a large amount of good rearing habitat available in Area B and the beaver pond. Rearing coho were abundant and a large number were captured in a minnow trap. This stream could be nominated as an anadromous stream.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 6/24/84 - 8/12/84 21. Time 0800-1030,0900-1100



Union Bay #5 Area A



1. ITZ



2 Beginning of Section 1.

Union Bay #5 Area B



1. Section 1. Excellent rearing.



2. Section 2. Good riffle area.

Union Bay #5 Area B



3. Section 5. Substrate size and gradient increase.

Union Bay #5

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	5.4	0						
2	100	3.4	0						
3	100	4.4	0						
4	100	3.4	1	3.4					
5	100	4.8	1	4.8					
Total Area A				8.2m ²					
1	100	3.2	30	96					
2	100	3.7	20	74					
3	100	2.5	30	75					
4	100	3.0	10	30					
5	100	2.0	10	30					
Total Area B				305m ²					

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Union Bay #5 Area B ADF&G No.

1. Section Number	1	2	3	4	5				
2. Channel Type									
3. Riparian Vegetation Class	C-5	C-5	C-5,4	C-5,4	C-5,4				
4. Incision Depth (m)	.5	.5	.5	.5	.5				
5. Lower Bank Composition									
a. bedrock or boulder					30				
b. rubble					30				
c. cobble				30	20				
d. decomposed organic material									
e. gravel	40	5	20	40	10				
f. sand & silt	60	95	80	30	10				
6. Bed substrate composition									
a. bedrock or boulder					40				
b. rubble & cobble				10	35				
c. coarse gravel	50	35	70	30	10				
d. fine gravel and sand	50	65	30	60	15				
e. silt-clay deposits									

7. Comments

Section 3: C-4 left bank

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Union Bay #5 Area ADF&G No. _____ Date 6/24/84

1. Reach	1	1	1	1	2				
2. Section	1	2	3	4	5				
3. Section Length (m)	100	100	100	100	100				
4. Gradient	5	5	5	6	1				
5. Water Quality	4	4	4	4	4				
6. Water Width a. channel	8.4	3.4	7.4	4	5				
b. water	5.4	3.4	4.4	3.4	4.8				
c. special character	-	-	-	-	-				
7. Water Type % SS	50	40	30	40	60				
SP	50	60	70	60	40				
DS									
DF									
3. Undercut Banks (m) left	10	1	1	5	25				
right	5	1	1	10	5				
9. Debris Cover % small	1	1	1	1	2				
large	1	1	1	1	10				
10. Riparian Vegetation %	15	25	10	15	20				
11. Substrate %:									
a. boulders	50	50	50	50	45				
b. cobble	5	10	10	20	20				
c. gravel	5	5	5	10	10				
d. sand	5	5	5	10	20				
e. organic muck									
f. bedrock	35	30	30	10	5				
g. other									
12. ASA	0	0	0	1	1				
13. Gravel Shape	2	2	2	2	2				
14. Streambank Vegetation									
a. percentage	100	100	100	50/50	50/50				
b. type	B	B	B	B/C	B/C				
15. Average Depth (cm)	10	25	20	10	8				
16. Beaver Activity	5	5	5	5	5				
17. Potential Barrier	-	-	-	-	-				
18. Aquatic Vegetation									
a. type	1/2,3	1/2,3	1/2,3	1	1/2				
b. density	2/3	1/3	1/3	1	1/3				
19. Sampling	Y	-	-	Y	-				
20. Rearing Area	30	30	30	30	40				

21. Comments

Section 1: Although rearing coho were observed in the ITZ, there were none observed in Section 1. The rearing area lacked debris, but boulders and Fontinalis provide cover. The substrate is predominately bedrock and boulders and there is no ASA present.

Section 2: A couple of rearing coho were observed. Salmon bones were also observed on the bank.

Section 4: Muskeg is present on the upper left bank. There are traces of ASA present, but is poor quality.

Section 5: The gradient decreases in this Section. The end of the Section contains

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 5, continued: good rearing with large debris present, but few rearing fish were observed. More salmon bones were found on the bank. A large active beaver dam was found beyond the end of Section 5. The survey of Section A was discontinued. Rearing coho were trapped above the beaver dam. There are three feeders to the beaver dam area, but only one had much fisheries potential. This area was surveyed as Area B.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Union Bay #5 Area BADF&G No. _____ Date 8/12/84

1. Reach	1	1	1	1	2				
2. Section	1	2	3	4	5				
3. Section Length (m)	100	100	100	100	100				
4. Gradient	.5	.75	1	1.5	4.5				
5. Water Quality	3	3	3	3	3				
6. Water Width a. channel	3.2	5.0	3.0	3.0	3.0				
b. water	3.2	3.7	2.5	3.0	3.0				
c. special character	-	-	-	-	-				
7. Water Type % SS	85	50	50	50	15				
SF	10	50	50	50	85				
DS	5								
DF									
8. Undercut Banks (m) left	50	75	60	45	10				
right	50	70	60	45	10				
9. Debris Cover % small	1	5	5	8	3				
large	5	20	20	20	5				
10. Riparian Vegetation %	T	10	15	25	30				
11. Substrate %:									
a. boulders					40				
b. cobble					35				
c. gravel	75	70	70	60	15				
d. sand	25	30	30	30	10				
e. organic muck									
f. bedrock									
g. other									
12. ASA	30	20	30	10	10				
13. Gravel Shape	3	3	3	3	3				
14. Streambank Vegetation									
a. percentage	100	100	100	100	100				
b. type	B	B	B	B	B				
15. Average Depth (cm)	25	25	30	10	10				
16. Beaver Activity									
17. Potential Barrier	-	-	-	-	-				
18. Aquatic Vegetation									
a. type	3	3	3/1	3/1	1/3				
b. density	2	2	2/3	2/3	1/2				
19. Sampling	Y	-	-	-	-				
20. Rearing Area	85	60	60	60	10				
21. Comments									

Section 1: Survey started 150 m. above beayer dam where water shallows up and gravel beings. Flow was estimated at .07 m³/sec. Patch of blue clay present on stream bottom at end of Section. Good rearing area with debris and undercut banks. Rearing coho observed. There is fair ASA where there are riffles. Most of the Section is pool area.

Section 2: Good numbers of coho fry observed. .014 m³/sec tributary to right - some good gravel and rearing available for 50 m. with rearing fish observed. After 100 m. however, the gradient increased to 10% and the substrate size increases.

Section 5: Survey discontinued at end of Section. The substrate has turned to boulders. There is no ASA and little rearing area available. The gradient is 6% and increasing.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/24/84 Stream Name Union Bay #5

Survey Area Area A H₂O Temp. 11.50c Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0830	1020	SS - 60 mm	Section 1
2	0900	1010	Ø	Section 4
3	0930	0950	SS - 80mm	in beaver dam pond

FISH SAMPLING FORM

ADF&G No. _____ Date 8/12/84 Stream Name Union Bay #5

Survey Area B H₂O Temp. _____ Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1000	1100	SS - 105,100, 95,95,95,50,85, 85,88,90,75,50, 50,55	Section 1

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-6 2. Historical Fish PS,SS

Part II.

1. Stream Name Meyer's Stream 2. ADF&G Catalog No. 102-80-05

3. USGS Map No. Craig C-1 4. Legal Location R86E,T71S, S-4

5. Latitude and Longitude 55°44'8", 132°14'48" 6. Agency Unit 05

7. Aerial Photo No. 0022,1973,21,9-14-73,02190 8. ~~MGMT~~ Area K29-708

9. Estimated Flow .25 m³/sec 10. Flow Stage 3

11. Land Use. a. present small hatchery b. Historical none observed

12. Temperature Sensitivity and/or origin 5,1

13. Access 2 14. Stream Temperature 6.75°C

15. pH 6-6.5 16. Intertidal Zone a. Gradient 2 %

b. Bottom type 1. fines 10 2. gravel/small cobble 60

3. large cobble/boulders/bedrock 30

c. ASA poor-substrate is compact and covered with filamentous algae

d. Schooling good schooling area in the back chuck

e. Shellfish potential many mussels, but few cockles and clams

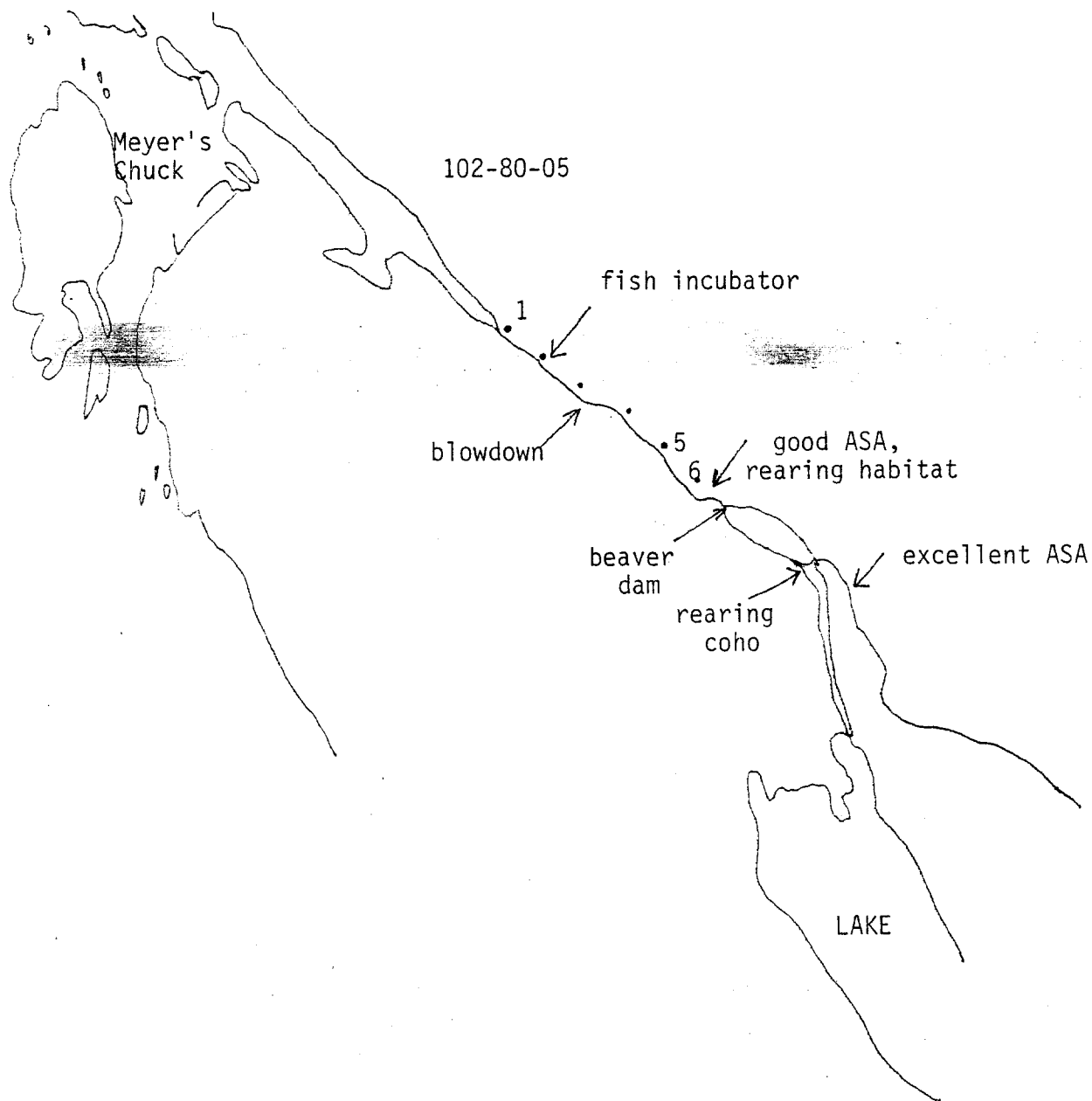
f. Anchorage best to tie up at Meyer's Chuck

17. Comments

Average depth and rearing area data was not collected on the survey form. This stream is not mapped correctly on U.S.G.S. maps. The stream flows from a beaver dam pond 600 m. from the ITZ. The beaver pond is connected to a large lake as well as having a surface runoff source. A fair amount of ASA is found in Sections 5 and 6 below the beaver dam. The best ASA is found above the beaver pond in a small tributary. The beaver pond may be a block to PS, but coho probably utilize the tributaries ASA. Rearing coho were observed in the beaver pond, in the tributary, and in the waterway connecting the beaver pond to the lake. The best rearing area was above the beaver dam, although adequate habitat was available in Sections 5 and 6.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 5/19/84 21. Time 0800-1600





1. ITZ



2. Typical habitat in Section 4.



3. Excellent ASA in tributary above beaver dam.

102-80-05

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	7	20	140					
2	100	5.2	0	0					
3	100	8.0	0	0					
4	100	4.8	2	9.6					
5	100	3.9	20	78					
6	100	5.2	60	312					
Total				539.6m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Meyer's Stream ADF&G No. 102-80-05 Date 5/19/84

1. Reach	1	2	2	2	3	3			
2. Section	1	2	3	4	5	6			
3. Section Length (m)	100	100	100	100	100	100			
4. Gradient	2	5	5	3	2	1.5			
5. Water Quality	3	3	3	3	3	3			
6. Water Width a. channel	7	9.6	10	4.8	3.9	5.2			
b. water	7	5.2	8	4.8	3.9	5.2			
c. special character	1	-	-	-	-	-			
7. Water Type % SS	25		10	20	10	10			
SF	75	60	90	80	70	80			
DS		20			10	10			
DF		20			10				
8. Undercut Banks (m) left	0	10	10	5	10	25			
right	5	10	10	5	15	25			
9. Debris Cover % small	1	1	2	2	10	2			
large	3	5	20	10	20	15			
10. Riparian Vegetation %	0	15	25	10	10	10			
11. Substrate %:									
a. boulders	10	80	70	36	15				
b. cobble	70	5							
c. gravel	10			2	30	50			
d. sand	10	15	20	2	55	50			
e. organic muck									
f. bedrock			10	60					
g. other									
12. ASA	20	0	0	2	20	60			
13. Gravel Shape	2	2	-	1	1	1			
14. Streambank Vegetation									
a. percentage	20/80	100	100	100	100	100			
b. type	A/B	B	B	B	B	B			
15. Average Depth (cm)									
16. Beaver Activity	5	5	5	5	6	6			
17. Potential Barrier	-	-	-	-	-	-			
18. Aquatic Vegetation									
a. type	2,3	1,3	1	1	1	1			
b. density	2	2	2	2	3	3			
19. Sampling	-	-	-	-	Y	-			
20. Rearing Area									
21. Comments									

Section 1: An old egg incubator and coke rings are present at the start of the Section. Several groups of 8 to 10 coho fry observed. ASA is poor quality due to the amount of fines present. There is also a moderate growth of filamentous algae and periphyton and a shallow water depth contributing to the poor ASA quality.

Section 2: Gradient and substrate size increases. Old plywood incubators are on left bank. Blowdown from south winds on right upper bank. Both upper banks are steep through Section 6.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: More blowdown from SW winds across stream is present.

Section 4: Gradient decreases and substrate size diminishes. Fontinalis moss present.

Section 5: Patch of blue clay on left bank at end of Section.

Section 6: The survey was discontinued at the end of the Section where a large active beaver dam crosses the stream. The beaver dam is not a barrier as rearing coho were observed above the dam. There are two water sources that feed into the other end of the beaver pond. One inlet connects to a large lake, and the other tributary is composed of surface runoff from the surrounding hills. The hillside tributary has about a 300 m. long by 3 m. wide stretch of gravel that contains 60% excellent ASA. This stretch contains the most and highest quality ASA observed during the survey. The tributaries substrate turns into boulders and the gradient increases beyond here. Several patches of blue clay were observed in this stretch.

FISH SAMPLING FORM

ADF&G No. 102-80-05 Date 5/19/84 Stream Name Meyer's StreamSurvey Area A H₂O Temp. 6.75°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1000	1035	Ø	Section 5 - rearing coho observed
2	1030	1320	SB	in beaver dam above Section 5
3	1115	1145	Ø	outlet of lake 12.5°C
4	1200	1240	Ø	tributary to beaver pond. Rearing coho observed 6°C

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-10 2. Historical Fish PS,SS,CS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 102-80-07

3. USGS Map No. Craig C-1 4. Legal Location R86E,T71S,S-21

5. Latitude and Longitude 55°42'40" 132°13'15" 6. Agency Unit 05

7. Aerial Photo No. 0023,1973,7,9-14-73,02190 8. MGMT Area K29-708

9. Estimated Flow .07 m³/sec 10. Flow Stage 2

11. Land Use. a. present manmade dam b. Historical handlogging

12. Temperature Sensitivity and/or origin 5,1

13. Access 2 14. Stream Temperature 110

15. pH 7.5 16. Intertidal Zone _____ a. Gradient 2

b. Bottom type 1. fines 5 2. gravel/small cobble 93

3. large cobble/boulders/bedrock 2

c. ASA fair

d. Schooling Two small pools were present

e. Shellfish potential cockles, clams, mussels, and crab observed

f. Anchorage good at mouth

17. Comments

A Peterson disc tag was recovered in the ITZ. Rearing area and average depth data was not tabulated. A year-round homestead is present at the mouth of the creek. The dam in Section 3 provides water for the homestead. 102-80-07 is limited by the presence of barriers in Secitons 2 and 3 and a lack of ASA. A bedrock/boulder falls in Section 2 is a possible barrier to PS. A 1.5 m. madmade dam at the start of Section 3 is a complete barrier. The best ASA is in Sections. 1 and 2. Only small amounts are found above Section 3. The stream ends in a large active beaver dam pond in Section 10. Stretches of shallow water in Section 4 and 5 could be obstacles to fish passage.

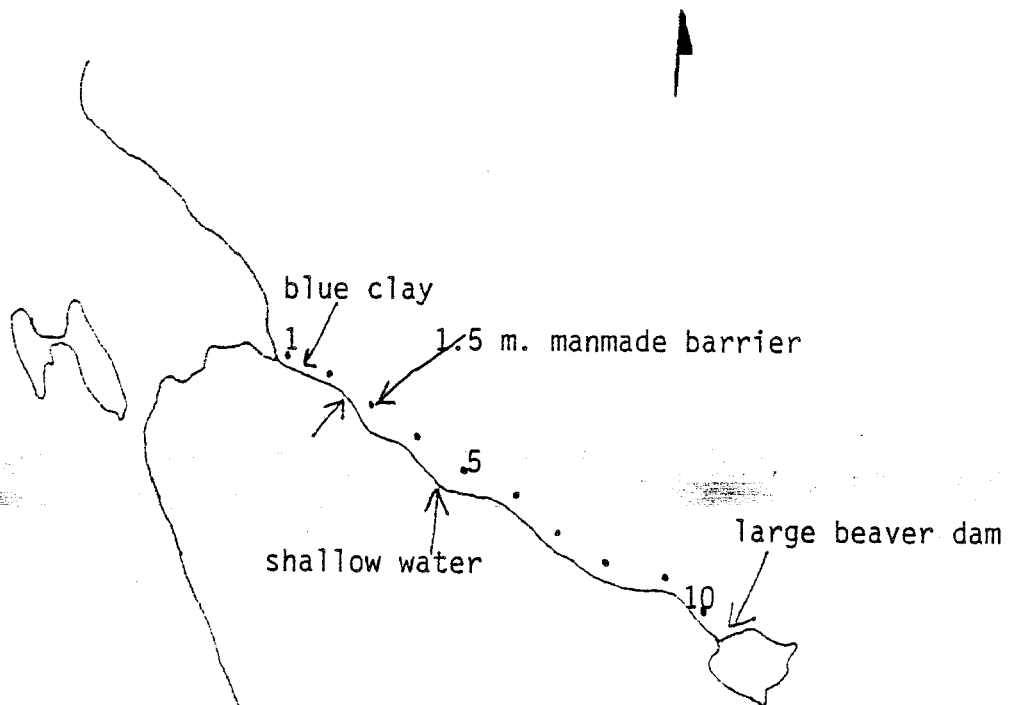
18. Investigators Burns/Cariello 19. Weather 6

20. Date 5/15/84 21. Time 0830-1330

BASELINE AQUATIC SURVEY, continued

The best rearing habitat is found in the first 3 Sections and beyond Section 7. Rearing trout were observed in the pool behind the dam and in Section 7. Rearing trout were observed in the pool behind the dam and in Section 7. CT fishing was reported to be available in the beaver dam area. The stream is not connected to the large lake above Meyer's Creek as shown in the U.S.G.S. maps. The stream empties from the large beaver dam area beyond Section 10.

102-80-07



102-80-10



1. Lower ITZ



2. Section 2: End of accessible ASA.



3. Section 2: Potential PS barrier at end of Section.



4. Section 3: Manmade barrier.

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	3.5	30	105					
2	100	3.5	10	35					
3	100	4.0	0	0					
4	100	3.0	0	0					
5	100	1.0	5	5.0					
6	100	3.2	3	9.6					
7	100	1.5	3	4.5					
8	100	2.0	0	0					
9	100	2.0	0	0					
10	7.5	2.0	0	0					

Total ASA 159.1m²
 Available ASA below the barrier 140 m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 102-80-07 Date 5/15/84

[illegible]

Section 1: Rearing trout are observed. A 10 m. long Section of blue clay is along the left bank. The ASA is only fair quality due to a moderate to heavy accumulation of fines in the substrate.

Section 2: Adult PS bones were observed on the bank. A possible water depth/debris barrier is present midway through the Section. A staircase bedrock and boulder falls with a total vertical rise of 3 m. is present 70 m. into the Section. These obstacles are barriers to PS, but may not be barriers to coho.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: A manmade 1.5 barrier dam with no pool below it is present at the start of the Section. Thick organic muck has collected behind the dam. Several rearing trout up to 150 mm. are observed. A potential debris/water depth is also present near the end of the Section.

Section 4: A possible velocity/depth barrier over bedrock is present 20 m into the Section. The stream has several stretches where it is only 7 to 10 cm. deep and may be a barrier to fish passage at a low water stage.

Section 5: The shallow water depth continues in Section 5. Minimal amounts of ASA are present. The rearing habitat also is lacking due to the shallow water.

Section 6: An old beaver dam is present 85 m. into the Section.

Section 7: The rearing habitat improves and several rearing trout were observed.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 102-80-07 Date 5/15/84

1. Reach	4								
2. Section	10								
3. Section Length (m)	75								
4. Gradient	5.5								
5. Water Quality	3								
6. Water Width a. channel	4								
b. water	2								
c. special character	-								
7. Water Type % SS	15								
SF	85								
DS									
DF									
8. Undercut Banks (m) left	0								
right	0								
9. Debris Cover % small	1								
large	5								
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders	60								
b. cobble	10								
c. gravel									
d. sand									
e. organic muck									
f. bedrock	30								
g. other									
12. ASA	0								
13. Gravel Shape	1,2								
14. Streambank Vegetation									
a. percentage	100								
b. type	B								
15. Average Depth (cm)									
16. Beaver Activity	1								
17. Potential Barrier	4								
18. Aquatic Vegetation									
a. type	1,2								
b. density	1								
19. Sampling	-								
20. Rearing Area									
21. Comments									

Section 10: The survey was discontinued 75 m. into the Section where a large active beaver dam area was encountered.

FISH SAMPLING FORM

ADF&G No. 102-80-07 Date 5/15/84 Stream Name _____

Survey Area A H₂O Temp. 11°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0915	1055	Ø	Section 1
2	0925	1055	Ø	Section 2
3	0955	1045	Ø	Section 3 above barriers

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-9 2. Historical Fish PS,SS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 102-80-10

3. USGS Map No. Craig C-1 4. Legal Location R86E,T71S,S-27

5. Latitude and Longitude 55°41'25" 132°13'8" 6. Agency Unit 05

7. Aerial Photo No. 0023,1973,7,9-14-73,02190 8. MGMT Area K29-708

9. Estimated Flow .05 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical old logging

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7°C

15. pH 7.5 16. Intertidal Zone high tide a. Gradient _____

b. Bottom type 1. fines _____ 2. gravel/small cobble _____

3. large cobble/boulders/bedrock _____

c. ASA _____

d. Schooling _____

e. Shellfish potential _____

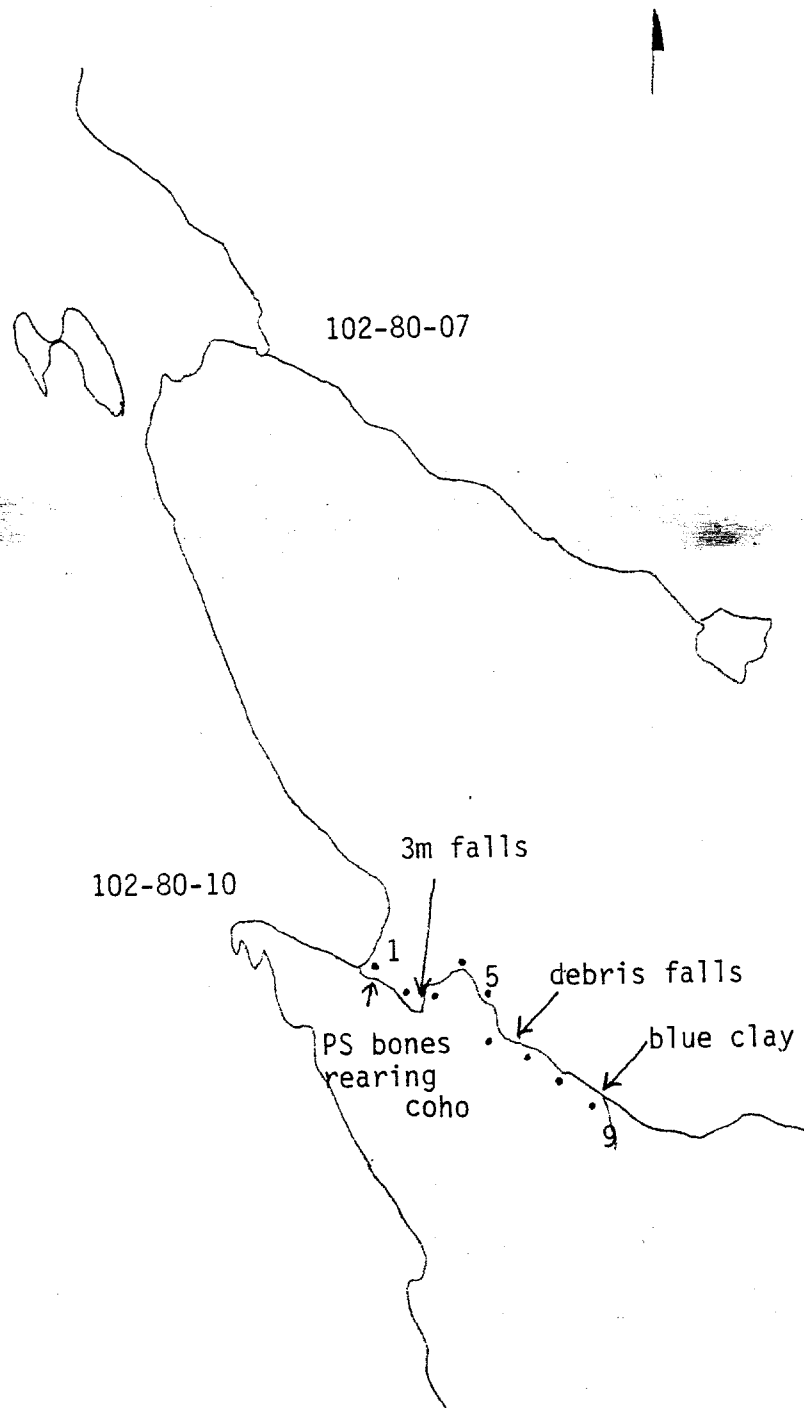
f. Anchorage good for skiff at mouth - open only to the North

17. Comments

Rearing area and average depth figures were not tabulated. The survey was done at high tide so little ITZ work could be done. 102-80-10 is limited by the presence of a 3 m. barrier falls 175 m from the ITZ and its shallow water depth. A small amount of ASA is available below the barrier. Rearing coho were observed below the barrier and PS bones were observed on the bank. Moderate amounts of ASA were above the barrier. There were many debris obstacles present also. The stream contained many stretches of shallow water which could be obstacles to fish passage also.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 5/15 /84 21. Time 1400-1700





1. Typical habitat in Section 1.



2. Three meter falls near the end of Section 2.



3. Section 7: Typical habitat in upper reach.

102-80-10

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	4.4	15	66					
2	100	2.0	15	30					
3	100	1.0	3	3					
4	100	1.0	5	5					
5	100	1.5	5	7.5					
6	100	2.0	20	40					
7	100	2.0	20	40					
8	100	2.0	20	40					
9	100	1.0	20	20					

Total ASA 251.5 m²
 Available ASA below the barrier 96 m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____

ADF&G No. 102-80-10

Date 5/15/84

1. Reach	1	1	1	1	2	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	4	2	3	8	2	6	2	6
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	8.5	3.5	2	2	3	6.5	4	3	6
b. water	4.4	2	1	1	1.5	2	2	2	1
c. special character	-	-	-	-	-	1	-	-	-
7. Water Type % SS	45	45	40	40	20	30	40	35	35
SF	55	35	45	50	78	60	60	65	65
DS		20	15	10	2	10			
DF									20
8. Undercut Banks (m) left	30	30	10	20	5	15	15	0	5
right	0	30	10	20	5	15	10	0	5
9. Debris Cover % small	2	5	1	2	1	1	1	1	1
large	8	15	10	15	10	15	8	15	20
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders	40	25	30	30	30	30	30	30	30
b. cobble	30	30	20	25	25	30	30	40	40
c. gravel	20	20	10	10	10	25	30	25	25
d. sand	5		5	5	5	10	5	5	
e. organic muck									
f. bedrock	5	25	35	30	30	5	5		10
g. other									
12. ASA	15	15	3	5	5	20	20	20	20
13. Gravel Shape	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)									
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	2	-	-	-	-	3	-	-
18. Aquatic Vegetation									
a. type	1,2,3	-	-	-	1	2	-	-	-
b. density	3	-	-	-	3	3	-	-	-
19. Sampling	Y	Y	Y	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 1: PS fish bones were abundant on the upper banks. Rearing coho were observed trapped inside pools. The substrate is predominately small boulders and large flat cobble that is rather compact. The ASA is not good quality.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 2: Several groups of up to 10 rearing coho were observed. Several debris falls/log jams are present. A 3 m. barrier bedrock falls is present 75 m. into the Section.

Section 3: A rearing trout about 75 mm. in length was observed.

Section 4: A small seep enters from the left bank. A heavy debris load is present and at least one possible debris obstruction is present. This Section contains a good stretch of ASA, but the present water flow is marginal in quality.

Section 5: The gradient increases to 8% in this Section.

Section 6: There are frequent debris falls with logs across the stream. Some of these logs have tended to collect smaller substrate behind them and do provide patches of ASA.

Section 7: A 1 m. debris falls is present. The riparian vegetation consists of even aged hemlock. Stumps from old logging were not observed. The area may have been burned at one time, however, as what appeared to be old fire scars were observed on both standing and downfall trees and snags.

Section 9: Several blue clay patches were observed on the stream bottom. The stream forks into two equal small branches at the end of the Section. The survey is discontinued at this point. No rearing coho have been observed since Section 2.

FISH SAMPLING FORM

ADF&G No. 102-80-10 Date 5/15/84 Stream Name _____

Survey Area _____ H₂O Temp. 7°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1425	1635	Ø	Section 1
2	1435	1640	Ø	Section 2 coho fry observe
3	1455	1635	Ø	Section 3 above barrier

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-9 2. Historical Fish

Part II.

1. Stream Name Clarence Strait #1 2. ADF&G Catalog No.

3. USGS Map No. Craig C-1 4. Legal Location R86E, T71S, S-27

5. Latitude and Longitude 55°41'15"132°12'48" 6. Agency Unit 05

7. Aerial Photo No. 0023,1973,9,9-14-73,02190 8. MGMT Area K29-708

9. Estimated Flow .06 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,6

13. Access 2 14. Stream Temperature 8°C

15. pH 7.5 16. Intertidal Zone a. Gradient 4

b. Bottom type 1. fines 70 2. gravel/small cobble 20

3. large cobble/boulders/bedrock 10

c. ASA poor

d. Schooling in Clarence Strait only

e. Shellfish potential clams, cockles, and mussels were observed

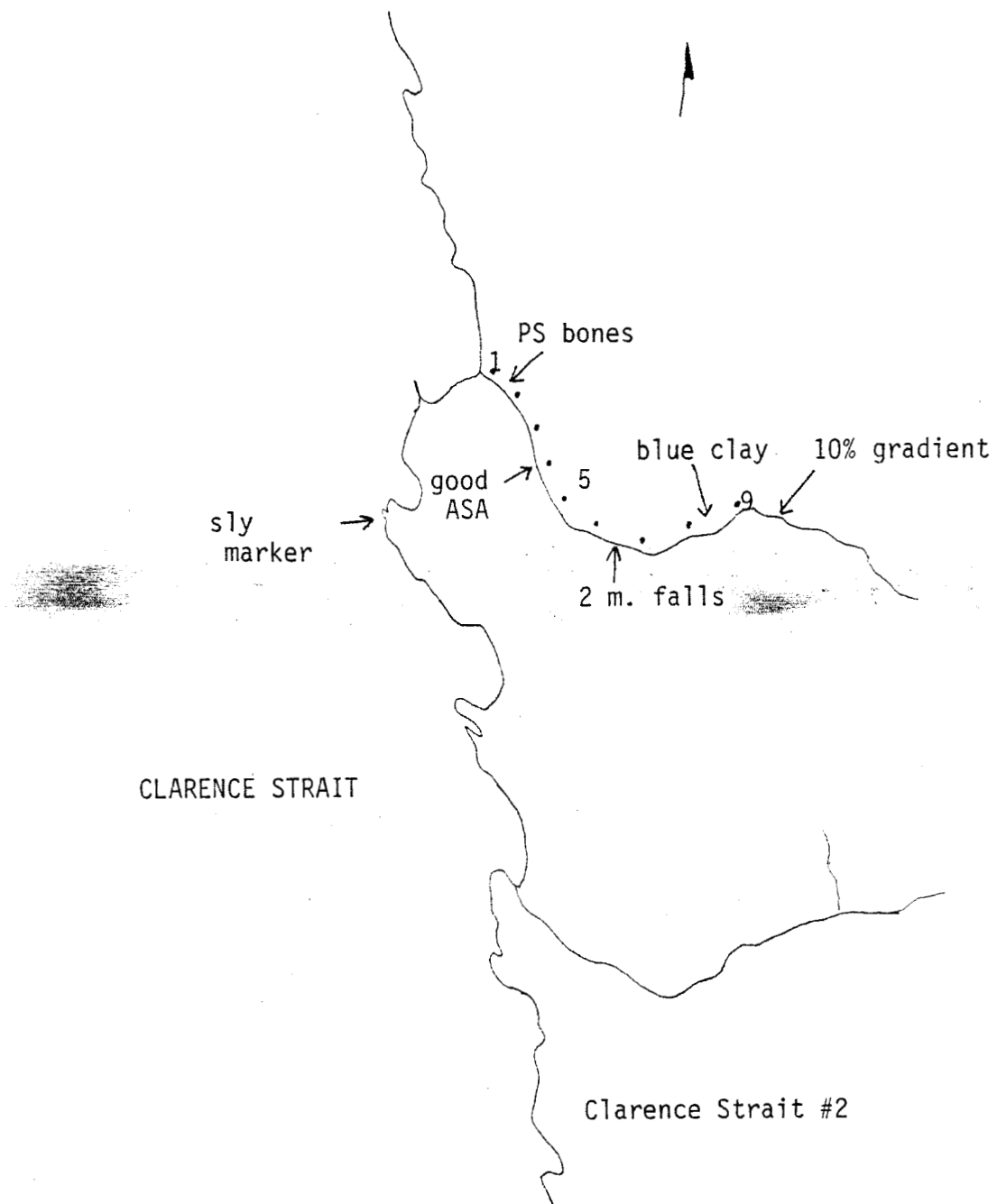
f. Anchorage poor - unprotected

17. Comments

Clarence Strait #1 is not classified as an anadromous stream, but should be. PS bones were found on the bank in the lower reach. A rearing coho was captured 300 m. upstream. Moderate amount of fair quality ASA are found through Section 8. The substrate is predominately large cobble and boulders. The rearing habitat is not exceptional quality and few rearing fish were observed.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 6/2/84 -368- 21. Time 0800-1045



Clarence Strait #1



1. Photo of ITZ

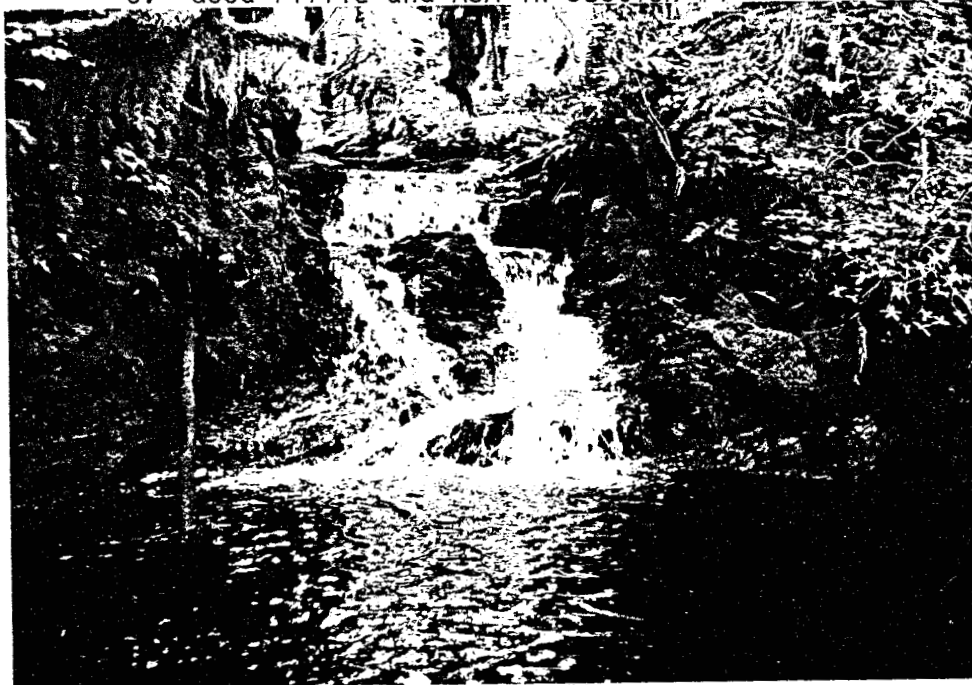


2. Section 1

Clarence Strait #1



3. Good riffle and ASA in Section #4



4. 2 m. falls in Section #6.

Clarence Strait #1

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	4.5	5	22.5					
2	100	4.5	5	22.5					
3	100	2.0	25	50					
4	100	2.2	35	77					
5	100	3.5	25	87.5					
6	100	1.5	10	15					
7	100	2.0	5	10					
8	100	2.0	5	10					
9	100	1.5	5	7.5					
Total				302 m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Clarence Strait #1 ADF&G No. _____ Date 6/2/84

1. Reach	1	1	1	1	1	2	2	2	2
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	6	5	1	1	5	3	10	3	7.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	10	5	5	3	4	6.8	3.5	3	3.5
b. water	4.5	4.5	2	2.2	3.5	1.5	2	2	1.5
c. special character	-	-	-	-	1	-	-	-	-
7. Water Type % SS	65	50	70	50	65	60	30	40	30
SF	35	50	25	49	34	35	70	60	70
DS			5	1	1	5			
DF									
8. Undercut Banks (m) left	5	15	25	15	10	10	1	25	1
right	15	10	25	30	30	25	1	25	1
9. Debris Cover % small	1	5	5	15	5	5	1	5	1
large	25	20	30	35	30	25	5	20	15
10. Riparian Vegetation %	5	15	25	25	20	20	30	10	30
11. Substrate %:									
a. boulders	35	60	10	5	5	40	35	50	40
b. cobble	15	15	50	50	60	20	10	30	30
c. gravel	5	10	25	35	25	20	10	10	10
d. sand	5	10	15	10	10	10	5	10	
e. organic muck									
f. bedrock	40	5				10	40		20
g. other									
12. ASA	5	5	25	35	25	10	5	5	5
13. Gravel Shape	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)	10	4	7.5	5	4	6	4	5	5
16. Beaver Activity	5	5	6	5	5	6	5	6	5
17. Potential Barrier	-	-	-	-	-	2	-	-	-
18. Aquatic Vegetation									
a. type	1	1	1	1	-	1	1	-	1
b. density	2	2	3	3	-	3	1	-	2
19. Sampling	Y	-	Y	-	-	-	-	-	-
20. Rearing Area	70	45	70	60	70	70	25	50	25
21. Comments									

Section 1: Fair numbers of PS bones were found on the upper banks. The substrate is predominately large boulders and bedrock. The ASA is lacking in quality and quantity.

Section 2: Fontinalis moss was observed occasionally.

Section 3: The gradient decreases and the amount of sand and silt present in the substrate increases. The stream velocity is too slow for most of the Section, but fair quality ASA is available in the riffle areas.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: The silt load decreases and the resulting clean gravel provides good quality ASA.

Section 5: Small patches of blue clay were observed in the stream bottom. The stream is braided for 20 m. The substrate is predominately cobble and provides fair quality ASA.

Section 6: The gradient and substrate size increases as the stream enters a new reach. A 2 m. falls is present midway through the Section. The falls is probably a PS and CS barrier, but may not be a coho barrier except in low flow periods due to the presence of a pool at the base of the falls.

Section 8: The gradient decreases during this Section and some ASA and rearing habitat is provided. Patches of blue clay were observed on the stream bottom. A 10 m. Section of the left upper bank is unstable and a slide has exposed blue clay.

Section 9: The gradient increases to over 10% at the end of the Section. The survey was discontinued at this point. The substrate was predominately boulders and only very limited fisheries habitat was provided beyond here. No rearing fish were observed above Section 6.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/2/84 Stream Name Clarence Strait #1
 Survey Area A H₂O Temp. 8°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0825	1040	Ø	Section 1
2	0855	1035	SS-70mm	Section 3

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-8 2. Historical Fish

Part II.

1. Stream Name Clarence Strait #2 2. ADF&G Catalog No.

3. USGS Map No. Craig C-1 4. Legal Location R86E,T71S,S-34

5. Latitude and Longitude 55°40'15",132°12'48" 6. Agency Unit 05

7. Aerial Photo No. 0023,1973,9,9-14-73,02190 8. MGMT Area K29-708

9. Estimated Flow .6 m³/sec. 10. Flow Stage 2

-11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 8.5°C

15. pH 7.5 16. Intertidal Zone a. Gradient 1

b. Bottom type 1. fines 79 2. gravel/small cobble 20

3. large cobble/boulders/bedrock 1

c. ASA poor

d. Schooling only in saltwater

e. Shellfish potential clams, cockles, and mussels observed

f. Anchorage good for small skiff

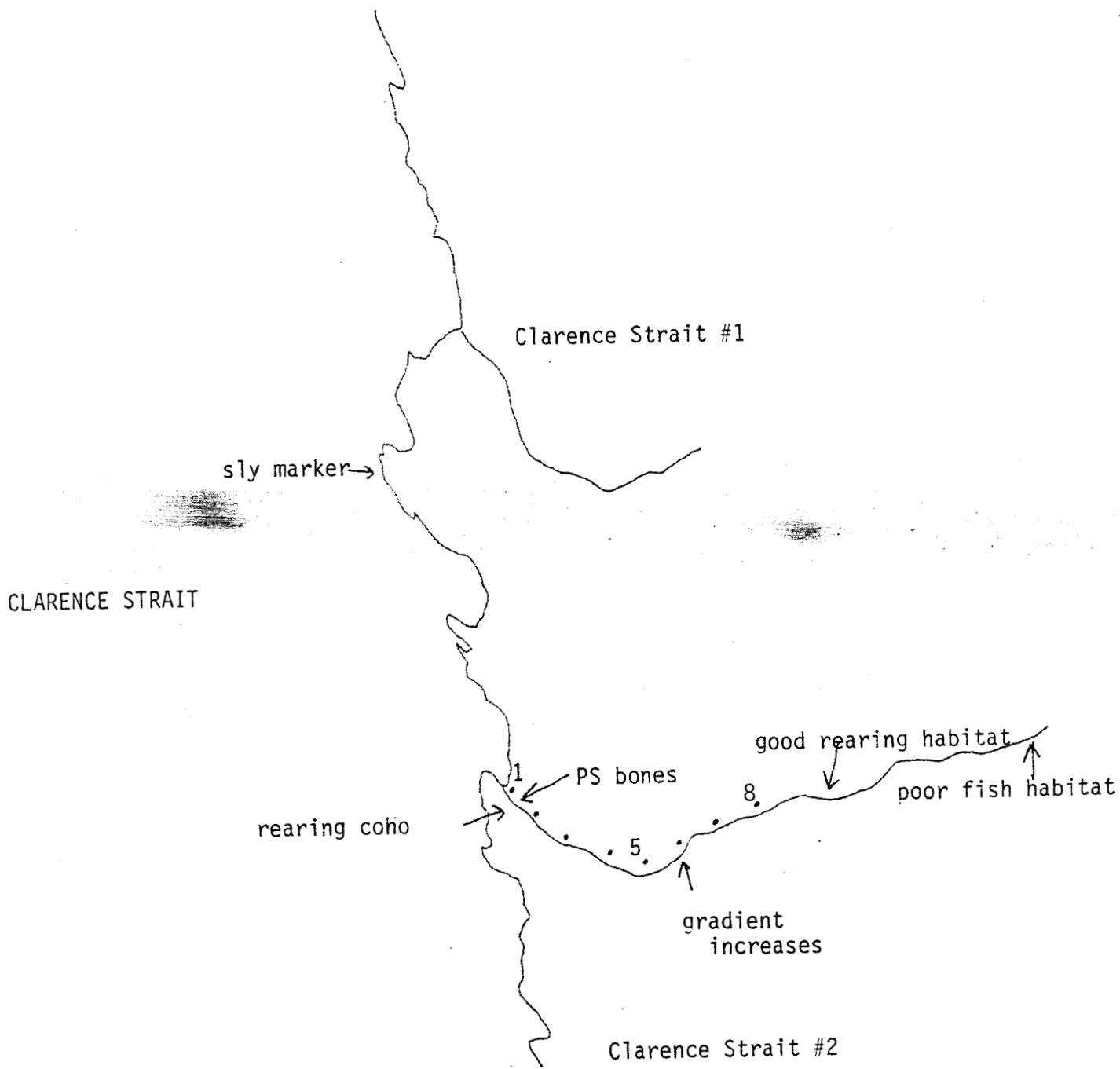
17. Comments

The upper ITZ contains a 100 m. stretch of potential ASA substrate, but a dense filamentous algae growth is present. Several groups of up to 10 rearing coho were observed in the ITZ.

Clarence Strait #2 is not classified as anadromous stream, but should be. PS bones were found on the bank and fair numbers of rearing coho were observed in the ITZ and stream. The ASA is sparse and limited primarily to the first 4 Sections. Although rearing coho were observed up to Section 5, the rearing habitat is not good quality. A lack of cover is present due to the limited amount of debris and undercut banks available.

18. Investigators Burns/Cariello 19. Weather 3,1

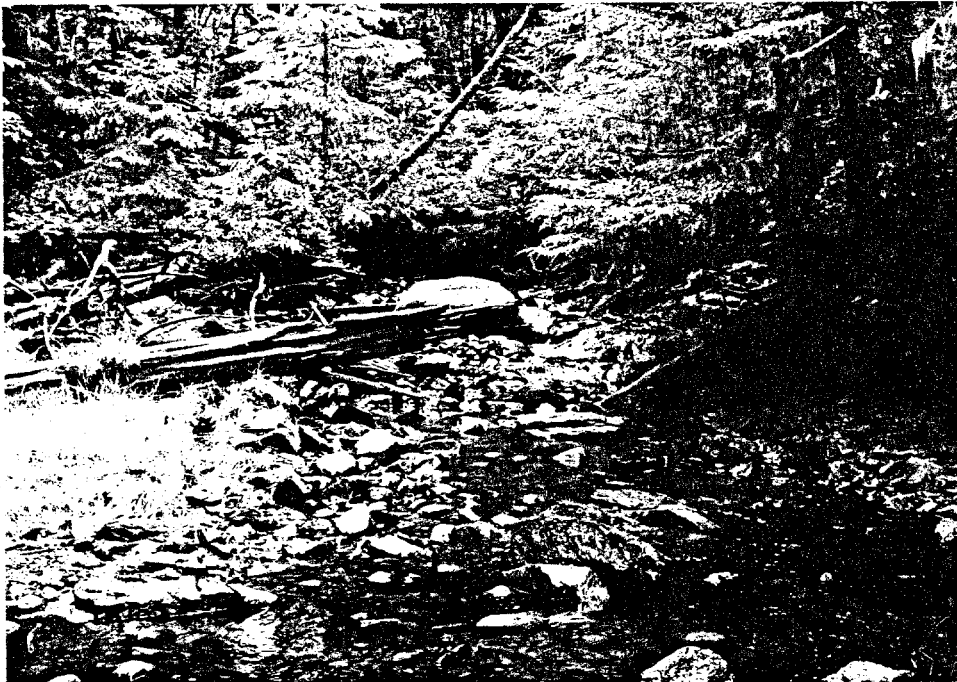
20. Date 6/2/84 21. Time 1115-1400



Clarence Strait #2



1. ITZ



2. Section #1



3. Section #7

Clarence Strait #2

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	6.2	10	62					
2	100	2.0	5	10					
3	100	8.0	1	8					
4	100	3.0	0	3					
5	100	1.5	0	0					
6	100	2.0	0	0					
7	100	1.5	0	0					
8	100	1.5	0	0					

Total ASA 83m²
 Available ASA below the barrier 83m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Clarence Strait #2 ADF&G No. _____ Date 6/2/84

1. Reach	1	1	1	1	1	2	2	2
2. Section	1	2	3	4	5	6	7	8
3. Section Length (m)	100	100	100	100	100	100	100	100
4. Gradient	4	3	5.5	2	6	8	7.5	10
5. Water Quality	3	3	3	3	3	3	3	3
6. Water Width a. channel	12	2.5	4.5	4	3	3	2.5	2
b. water	6.2	2	3	3	1.5	2	1.5	1.5
c. special character	-	-	-	-	-	-	-	-
7. Water Type % SS	65	40	30	50	65	30	30	30
SF	34	59	69	50	30	70	70	70
DS	1	1	1		5			
DF								
8. Undercut Banks (m) left	10	5	10	10	10	10	1	1
right	10	10	1	10	15	15	1	1
9. Debris Cover % small	5	1	1	5	5	10	10	10
large	15	15	10	20	15	10	20	40
10. Riparian Vegetation %	10	10	30	60	50	20	15	40
11. Substrate %:								
a. boulders	30	50	20	50	50	50	70	60
b. cobble	40	30	15	40	40	15	20	20
c. gravel	20	10	5	5	5	5	5	10
d. sand	5			5	5	5		
e. organic muck								
f. bedrock	5	10	60			25		
g. other								
12. ASA	10	5	1	1	0	0	0	0
13. Gravel Shape	2	2	2	2	2	2	2	2
14. Streambank Vegetation								
a. percentage	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B
15. Average Depth (cm)	5	25	38	25	7.5	40	13	10
16. Beaver Activity	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	3	-	-
18. Aquatic Vegetation								
a. type	3	1	1	1	1	1	1	1
b. density	1	2	1	2	2	2	2	2
19. Sampling	-	Y	-	Y	-	-	-	-
20. Rearing Area	60	50	25	50	30	30	25	25
21. Comments								

Section 1: PS bones were observed on the upper bank. Rearing coho were observed with regularity, but in low density. The substrate is large and the ASA is only fair quality. Section 1 has few riffles, but many pool areas.

Section 2: The ASA is confined to patches between the boulders and large cobble and is poor quality. Fontinalis moss is present.

Section 3: The incidence of rearing coho decreases in this Section. The Fontinalis growth is heavy in Sections 3 and 4. Bedrock is the predominate substrate.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: The gradient flattens out and boulders large cobble become the predominant substrate. A small tributary enters from the right bank.

Section 5: Rearing coho observed infrequently.

Section 6: The gradient increases substantially and the habitat becomes indicative of the upper reach. The substrate becomes predominately large boulders and there is little if any, ASA. The rearing habitat is

also poor quality with little pool area or cover available. A debris/log jam is present and could be a possible barrier to adult salmon passage.

Section 8: The survey is discontinued at the end of the Section. No rearing fish were observed and the fisheries habitat is minimal in quality. The habitat remained constant for 150 m. above the end of the survey. The next 300 m. stretch contained a heavy debris load and undercut banks and provided excellent rearing habitat. Although, trout up to 150 mm. were observed. No rearing coho were observed. There were patches of ASA present only. The gradient then increases once more and the fisheries habitat became quite minimal in quality.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/2/84 Stream Name Clarence Strait #
 Survey Area A H₂O Temp. 8.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1215	1345	SS-37mm	Section 2
2	1230	1345	Ø	Section 4

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-21 2. Historical Fish SS,CS,PS

Part II.

1. Stream Name Wolf Creek 2. ADF&G Catalogue No. 102-80-13

3. USGS Map No. Craig C-1 4. Legal Location R86E,T72S,S-3

5. Latitude and Longitude 55°39',132°11'45" 6. Agency Unit 05

7. Aerial Photo No. 0023,1973,10,9-14-73,02190 8. Mgmt. Area K29-711

9. Estimated Flow .2m³/sec 10. Flow Stage 2

11. Land Use a. present trap line b. historical fish traps near mouth

12. Temperature Sensitivity and/or origin 5.4

13. Access 2 14. Stream Temperature 80C

15. pH 7.5 16. Intertidal Zone a. Gradient 2

b. Bottom type 1. fines 25 2. gravel/small cobble 35

3. large cobble/boulders/bedrock 40

c. ASA poor

d. Schooling a 15 m. long pool is present in the lower ITZ

e. Shellfish potential evidence of clams, cockles, and crab observed

f. Anchorage good for skiff at mouth

17. Comments A Petersen disc tag was found during the survey. Average depth, rearing area and riparian figures were not tabulated. 102-80-13 appears to have fair fisheries potential. Many rearing coho were observed. Only limited ASA is available for the first 1000 m. Sections 11 through 20 contain good quality ASA. The rearing habitat is poor quality through Sec. 7. Rearing coho were more abundant however, in Sections 8 through 19, where large debris and undercut banks provided cover. The ASA was decreasing in quality at the end of the survey, but spawning substrate was still available. A reconnaissance by helicopter found that the fisheries habitat appeared to decline dramatically in quality a short distance upstream. The gradient increased and boulders and whitewater were very apparent.

18. Investigators Burns/Cariello 19. Weather 1

20. Date 5/16/84 21. Time 0900-1630



102-80-13

whitewater

good ASA

20

rearing coho abundant

blue clay

15

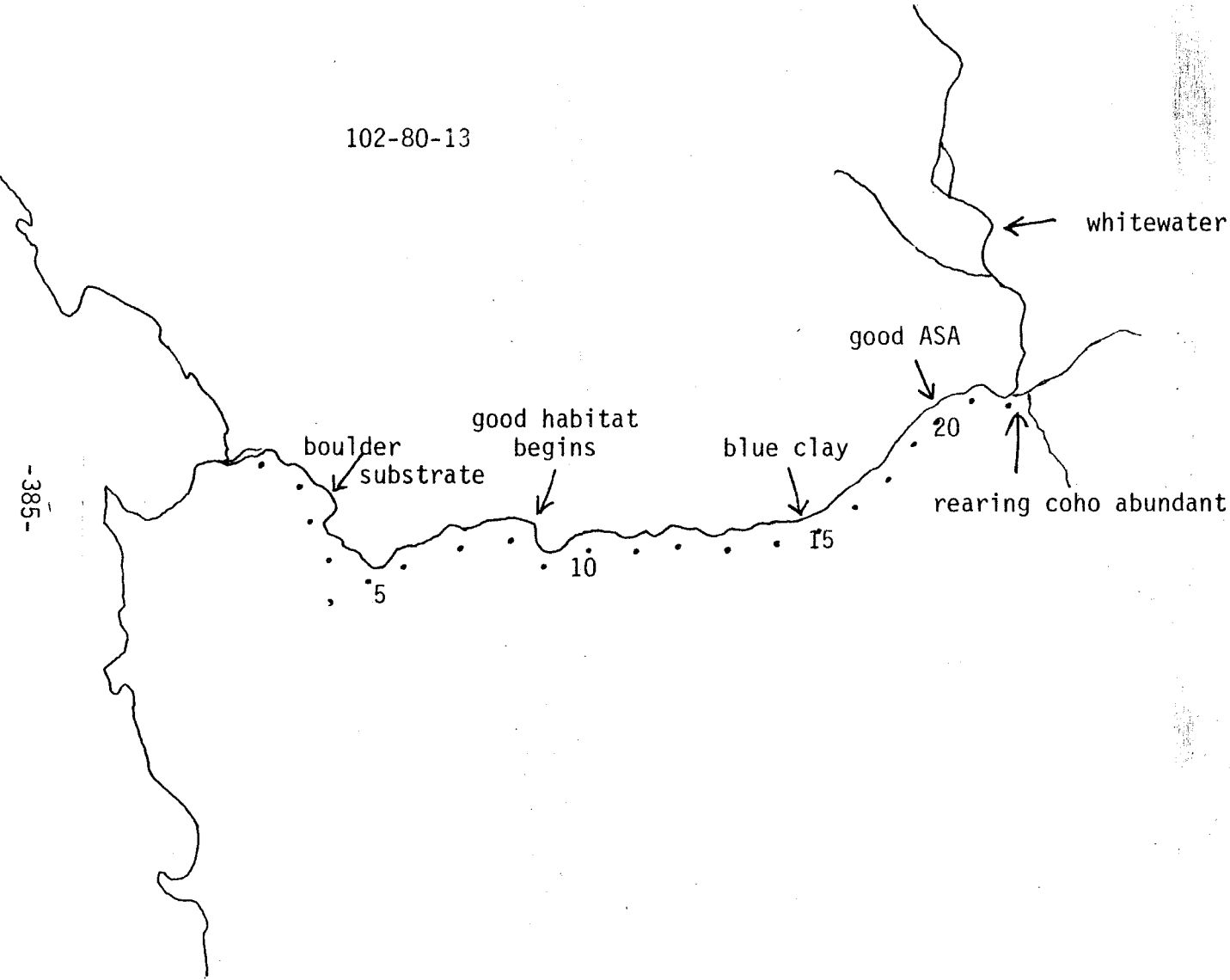
good habitat begins

10

boulder substrate

5

-385-





1. Lower ITZ



2. Section 1: Poor habitat typical of lower reach.



3. Rearing habitat in Section 7.



4. Tributary in Section 21.

102-80-13



5. Large substrate at end of survey.

102-80-13

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	8.2	0	0					
2	100	5.1	0	0					
3	100	6.5	5	32.5					
4	100	12	3	36					
5	100	7.8	0	0					
6	100	7.0	0	0					
7	100	7.0	5	35					
8	100	11.5	5	57.5					
9	100	13.6	5	68					
10	100	16.5	0	0					
11	100	13.8	15	207					
12	100	11.0	10	110					
13	100	13.0	10	130					
14	100	12.0	20	240					
15	100	2.5	15	37.5					
16	100	3.5	50	175					
17	100	5.2	30	156					
18	100	8.0	30	240					
19	100	4.5	30	135					
20	100	9.5	25	237.5					
21	100	3.0	10	30					

Total ASA 1927.0m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Wolf Creek ADF&G No. 102-80-13 Date 5/16/84

1. Reach	1	1	1	1	2	2	3	3	3
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1.5	3	3.5	1	4.5	2	3	1.5	.5
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	11	12	8.5	13	9.5	10.5	8	11.5	13.6
b. water	8.2	5.1	6.5	12	7.8	7	7	11.5	13.6
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	20	25	35	30	40	34	55	45	60
SF	78	73	65	70	60	65	40	45	35
DS	2	2				1	5	10	5
DF									
8. Undercut Banks (m) left	1	0	5	2	0	5	45	40	25
right	0	0	5	0	0	5	5	30	25
9. Debris Cover % small	0	1	0	1	1	1	1	3	10
large	1	1	1	3	5	1	5	15	15
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders	70	70	65	70	15	25	50		
b. cobble	15	20	20	15	5	10	15	15	5
c. gravel	5	5	5	10			10	40	50
d. sand							10	40	40
e. organic muck								5	5
f. bedrock	10	5	10	5	80	65	10		
g. other									
12. ASA	0	0	5	3	0	0	5	5	5
13. Gravel Shape	2,1	2,1	2	2	2	2	2,1	2,1	2,1
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	B	B	B	B	B	B	B	B
15. Average Depth (cm)									
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	6	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3/1	3/1	1,3	3/1	1,3	1/3	1/3	3	3
b. density	1/2	1/3	2	1/3	2	1/3	1/3	3	3
19. Sampling	Y	-	-	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 1: Five rearing coho observed. The substrate is predominately boulders and little ASA is provided. The rearing habitat is limited by the lack of cover even though rearing coho were observed throughout the survey.

Section 2: A 1m. falls is present that would be an obstacle to PS migration at low flow stage.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: Many rearing coho were observed.

Section 4: An adult steelhead was observed. Fresh viscera from another large fish (which was most likely another steelhead), was also found on the bank. Skunk cabbage is growing in the gravel at the water's edge.

Section 5: Bedrock is the predominate substrate in Sections 5 and 6. A small bedrock falls that is not a barrier is present in Section 5.

Section 7: The stream changes from a bedrock channel to a slow meandering habitat with a cobble/gravel/sand substrate. Alder with an average height of 18 to 20 m. is present along the stream bank.

Section 8: The debris loading and presence of undercut banks increases the quality of the rearing habitat. Rearing coho are abundant through Section 21. The ASA improves both in quality and quantity. Patches of blue clay are observed on the stream bottom through Section 11.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Wolf Creek ADF&G No. 102-80-13 Date 5/16/84

1. Reach	3	3	3	3	3	3	3	3	3
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	.5	.5	.5	.5	.75	.5	.5	.5	1
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	19	15	12.5	18	19	9	10	19	17.5
b. water	16.5	13.8	11	13	12	2.5	3.5	5.2	8
c. special character	1	1	1	1	1	1	1	1	1
7. Water Type % SS	50	50	40	35	45	50	30	45	50
SF	5	5	25	30	45	45	60	45	45
DS	45	45	35	35	10	5	10	10	5
DF									
8. Undercut Banks (m) left	40	30	60	70	60	90	60	60	40
right	30	35	50	40	60	90	40	60	40
9. Debris Cover % small	10	10	10	5	5	10	5	1	5
large	15	25	20	15	15	20	10	10	10
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders									
b. cobble	5	10	15	25	30	30	50	60	60
c. gravel	50	50	40	35	35	35	30	30	30
d. sand	40	40	40	35	30	30	20	10	10
e. organic muck	5		5	5	5	5			
f. bedrock									
g. other									
12. ASA	0	15	10	10	20	15	50	30	30
13. Gravel Shape	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	A	A	A	A	A	A	A
15. Average Depth (cm)									
16. Beaver Activity	1	7	4	5	1	1	6	6	6
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	3	-	-	-	-	-	-	-	-
b. density	3	-	-	-	-	-	-	-	-
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area									
21. Comments									

Section 10: Blowdown and debris have collected to form a log jam across the stream.
 Section 11: The stream begins to braid. The lower banks appear unstable and are susceptible to erosion.
 Section 12: The stream separates into three channels.
 Section 13: Iron bacteria are present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 14: Patches of blue clay are observed near the end of the Section. The channelling continues. The right channel exits from a large active beaver dam area. The survey continues on the main channel.

Section 15: The stream narrows down, but the habitat remains essentially unchanged. More blue clay is observed.

Section 17: Stretches of exposed blue clay are present on the banks. This Section contains the best quality ASA observed in the survey.

Section 18: The extensive braiding and channelling continue in this Section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Wolf Creek ADF&G No. 102-80-13 Date 5/16/84

1. Reach	3	4	4						
2. Section	19	20	21						
3. Section Length (m)	100	100	100						
4. Gradient	.5	.5	.5						
5. Water Quality	3	3	3						
6. Water Width a. channel	18.5	10	12.5						
b. water	4.5	9.5	3						
c. special character	1	1	1						
7. Water Type % SS	50	45	40						
SF	50	45	45						
DS		10	15						
DF									
8. Undercut Banks (m) left	35	40	40						
right	35	30	35						
9. Debris Cover % small	8	5	2						
large	15	20	10						
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders		10	40						
b. cobble	60	50	30						
c. gravel	30	30	20						
d. sand	10	10	10						
e. organic muck									
f. bedrock									
g. other									
12. ASA	30	25	10						
13. Gravel Shape	1,2	1,2	1,2						
14. Streambank Vegetation									
a. percentage	100	100	100						
b. type	A	A	A						
15. Average Depth (cm)									
16. Beaver Activity	5	5	5						
17. Potential Barrier	-	-	-						
18. Aquatic Vegetation									
a. type	1,2	1,2	1,2						
b. density	3	3	3						
19. Sampling	-	-	-						
20. Rearing Area									
21. Comments									

Section 20: The substrate increases in size and there is a decrease in the ASA.
 Section 21: The survey is discontinued at the end of the Section. The substrate continues to get larger. The braiding continues and the rearing habitat is still excellent quality with a heavy debris load present. A .08 m³/sec tributary with fair ASA enters from the left bank. Patches of boulder and bedrock are present however, and the gradient is increasing. Undercut banks and overhanging vegetation provide good to excellent rearing habitat.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

The mainstem is still braided, although it shows indications of becoming a footslope type stream. The substrate is flat and angular small boulders and large cobble. The substrate is also becoming more compact. The compactness size of the substrate is lowering the quality and quantity of ASA. The presence of many old large trees across the stream contributes to good rearing habitat however, and rearing coho are still abundant.

A helicopter reconnaissance above this point found that the stream's fishery potential decreases dramatically a short distance upstream. The gradient appears to increase a great deal and the substrate changes to large boulders. Whitewater was very evident and the stream appeared inaccessible to fish migration upstream. This steep whitewater stretch is approximately 800 m. long.

FISH SAMPLING FORM

WDF&G No. 102-80-13 Date 5/16/84 Stream Name Survey Area A H₂O Temp. 8°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0945	1055	1 DV	Section 1 coho fry observed
2	1050	1150	Ø	Section 6 coho fry observed
3	1235	1605	Ø	Section 9 coho fry observed.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-30 B 1-10 2. Historical Fish PS,CS,SS

Part II.

1. Stream Name Jim Creek 2. ADF&G Catalogue No. 102-80-17

3. USGS Map No. Craig C-1 4. Legal Location R86E,T72S,S-23

5. Latitude and Longitude 55°37'05" 132°11'52" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,207,9-14-73,02190 8. Mgmt. Area K29-711

9. Estimated Flow 2 m³/sec 10. Flow Stage 3

11. Land Use a. present none observed b. historical none observed

12. Temperature Sensitivity and/or origin 1,5,4

13. Access 2 14. Stream Temperature 8.5°C

15. pH 7.5 16. Intertidal Zone a. Gradient 2

b. Bottom type 1. fines 5 2. gravel/small cobble 30

3. large cobble/boulders/bedrock 65

c. ASA poor

d. Schooling a 20 m. long pool available at low tide

e. Shellfish potential cockles, clams, and mussels observed

f. Anchorage good for small skiff - unprotected to N + W

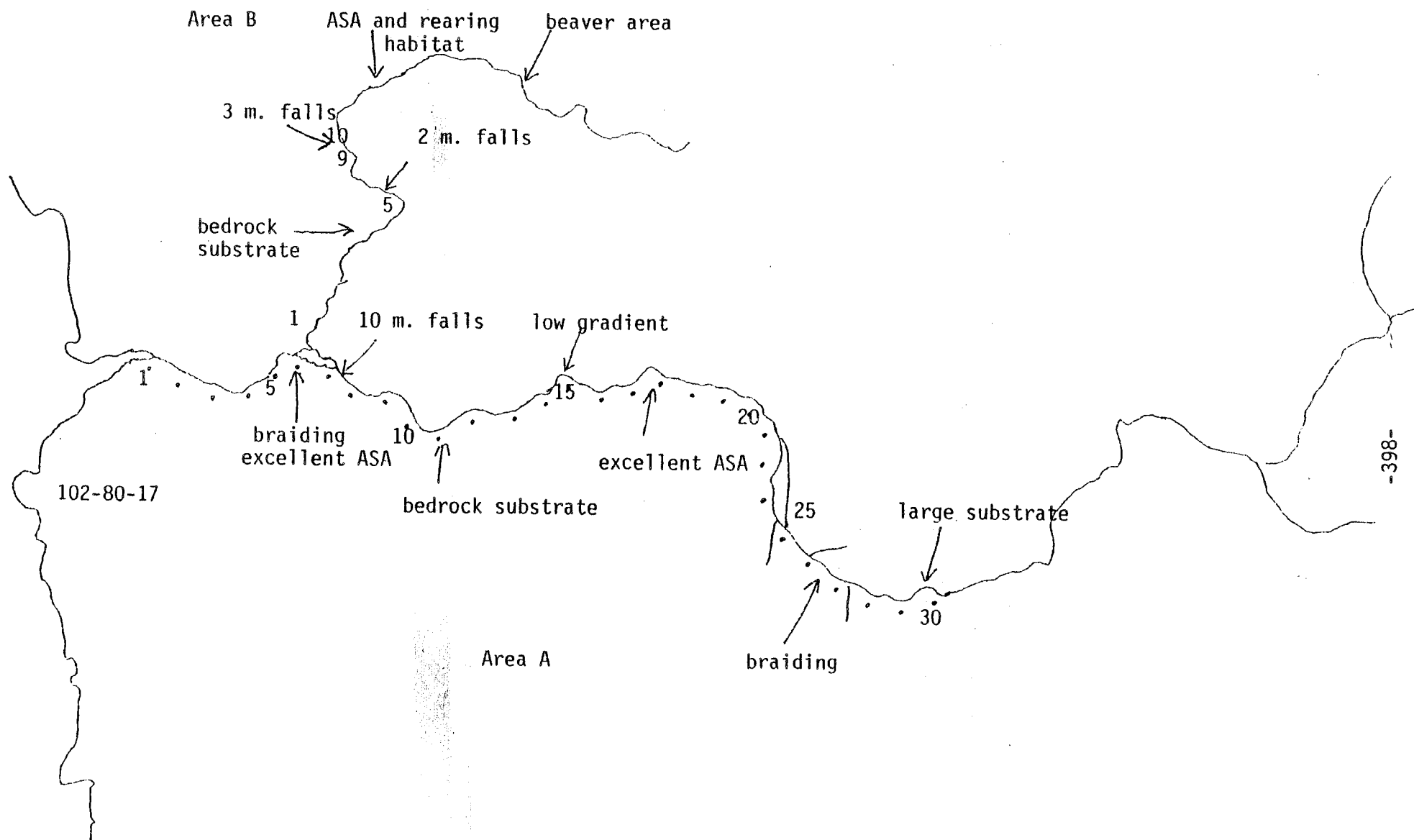
17. Comments

Rearing area percentages and average depth figures were not tabulated during the first two days of survey.

Jim Creek is limited by a 10 m. barrier falls about 700 m. from the ITZ. Some excellent ASA is present in Section 4 and the braided area of Sections 5 and 6. Excellent rearing habitat is also provided in the same stretch and many rearing coho were observed. Area B has a predominately bedrock/boulder substrate. Some ASA is present in a severely braided area before the Area B survey was started, but there is little if any, ASA in the Section surveyed. There is a lack of quality rearing area in Area B also. A PS and CS barrier is present in Section 6 and a probable complete barrier is present in Section 9. The gradient decreases about 200 m. beyond the end of the survey and a stretch of good quality ASA rearing area is present. The gradient also decreases above the falls in Area A and a long stretch of good quality ASA and fair rearing habitat is present. Further intensive surveys might be warranted to study the feasibility of a fish pass over the falls in Sections 7 and 8 of Area A.

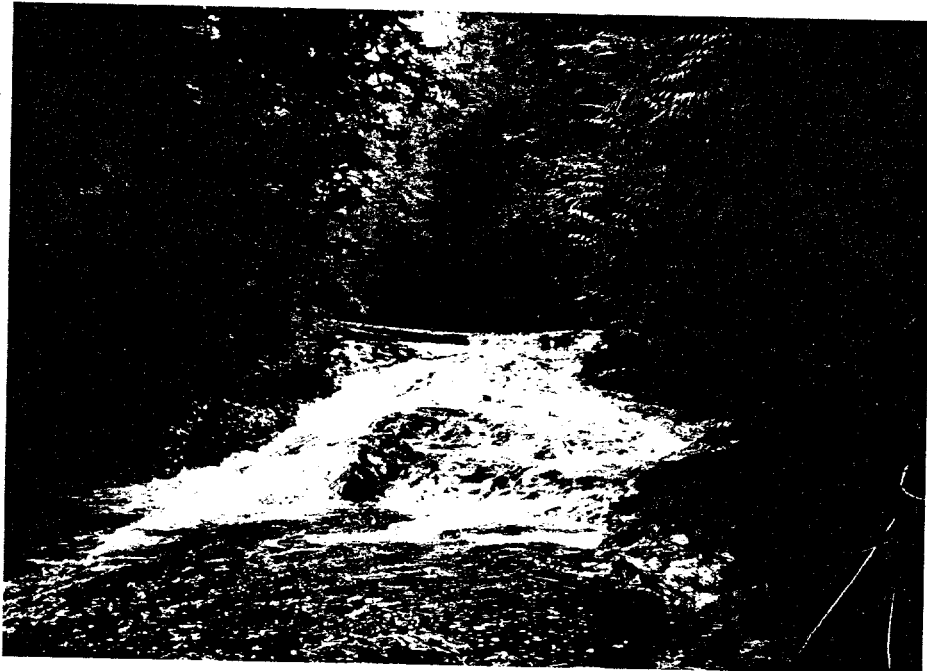
18. Investigators Burns/Cariello 19. Weather 3,1

20. Date 5/17 + 5/18/84, 6/9/84, 9/3/84 -397- 21. Time 20 hours total

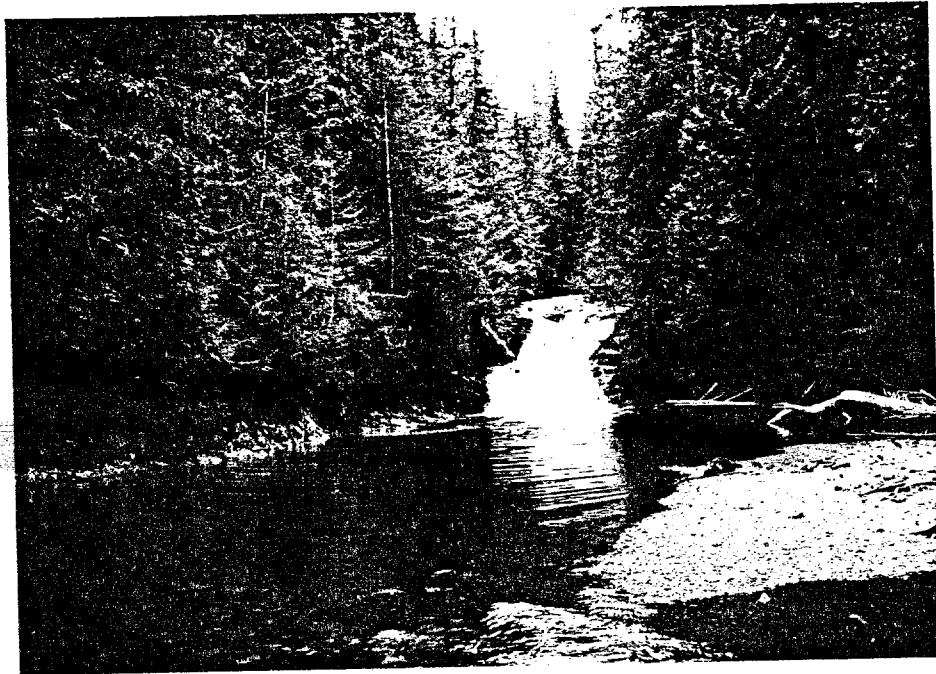




1. Schooling area in lower ITZ.



2. Whitewater near the end of Section 1.



3. 10 m. barrier falls in Section 7.



4. Excellent ASA near the end of Section 14.



5. Section 20. Good riffle area.



6. Section #22. Excellent ASA



7. Section 24 - Tributary entering from the right bank.



8. Section 29 - Gradient begins to increase with a higher percentage of boulder.



1. Braided area confluence of Area A and Area B.



2. Boulder/bedrock substrate in Section 8.



3. Probable velocity barrier in Section 9.



4. Good ASA in area above end of survey.

102-80-17

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	25	0	0					
2	100	9.2	0	0					
3	100	13.5	0	0					
4	100	15	20	300					
5	100	14	75	1050					
6	100	14	10	140					
7	100	28	0	0					
8	100	20	0	0					
9	100	10.5	0	0					
10	100	12	20	240					
11	100	27	0	0					
12	100	11	10	110					
13	100	14.5	0	0					
14	100	11	5	55					
15	100	19	10	190					
16	100	16.5	5	82.5					
17	100	15	30	450					
18	100	20	30	600					
19	100	19	5	95					
20	100	16	40	640					
21	100	16	50	800					
22	100	11.3	70	791					
23	100	15.5	40	620					
24	100	19	70	1,330					
25	100	13	60	780					
26	100	13.5	60	810					
27	100	18.5	50	925					
28	100	13	50	650					
29	100	6.8	30	204					
30	100	10	10	100					

Total Area "A" 10,962.5m²
 Available ASA below the barrier 1,490 m²

1	100	15	0	0
2	100	10	0	0
3	100	10	0	0
4	100	8	0	0
5	100	9	0	0
6	100	10	0	0
7	100	12	0	0
8	100	8	0	0
9	100	7.3	0	0
10	100	6.5	0	0

Total Area "B" 0

CLEVELAND PENINSULA BASELINE (LEVEL TWO) AQUATIC SURVEY
HYDROLOGIC MEASUREMENTS

Stream Name Jim Creek Area A ADF&G No. 102-80-17

1. Section Number	22	23	24	25	26	27	28	29	30
2. Channel Type									
3. Riparian Vegetation Class	C6	C6	C6	C6	C6	C6	C6	C6	C6
4. Incision Depth (m)	1.5	.5	.7	.2	.5	1	.6	.5	.5
5. Lower Bank Composition									
a. bedrock or boulder									
b. rubble	10				10	10	20	20	20
c. cobble	10	5	5	5	10	20	20	20	30
d. decomposed organic material									
e. gravel	10	5	5	5	5	20	20	20	20
f. sand & silt	70	90	90	90	75	50	40	40	30
6. Bed substrate composition									
a. bedrock or boulder						13	25	32	50
b. rubble & cobble	55	50	60	65	70	80	72	65	47
c. coarse gravel	35	30	30	25	25	5	1	1	1
d. fine gravel and sand	5	10	5	5	3	1	1	1	1
e. silt-clay deposits	5	10	5	5	2	1	1	1	1

7. Comments

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Jim Creek Area A ADF&G No. 102-80-17 Date 5/17/84

1. Reach	1	1	1	2	2	2	3	3	3
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	2	8	3	.5	1	1	10	4	2
5. Water Quality	1	1	1	1	1	1	1	1	1
6. Water Width a. channel	31	14	15.5	15	17	18	28	22	12.5
b. water	25	9.2	13.5	15	14	14	28	20	10.5
c. special character	-	-	-	-	1	1	-	-	-
7. Water Type % SS	15	14	15	30	25	35	5	5	10
SF	80	80	75	15	65	36	85	85	90
DS		1	5	50	5	25	5	5	
DF	5	5	5	5	5	5	5	5	
8. Undercut Banks (m) left	0	20	5	5	40	70	0	0	25
right	0	0	0	5	40	80	0	0	0
9. Debris Cover % small	1	1	1	1	10	10	1	1	1
large	1	1	1	10	20	25	5	1	10
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders	10			10	10	30	5	10	10
b. cobble	5	5	5	50	60	40			15
c. gravel				20	20	10			
d. sand				20	10	10			
e. organic muck									
f. bedrock	85	95	95				95	90	85
g. other (sunken log)						10			
12. ASA	0	0	0	20	75	10	0	0	0
13. Gravel Shape	2	2	2	1,2	2	2	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	A	A	B	B	B
15. Average Depth (cm)									
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	2	2	-
18. Aquatic Vegetation									
a. type	2/3	1/3	1/3	3	1/3	3	3/1	1/3	1,3
b. density	2/1	2/2	2/2	1	3/3	3	2/2	1/2	2
19. Sampling	Y	-	-	-	-	Y	-	-	-
20. Rearing Area									
21. Comments									

Section 1: A dead CS fry and coho juvenile were found on a gravel bar. There is little ASA as the substrate is predominately bedrock for the first three Sections. A small gradually inclining bedrock falls is present 80 m. into the Section. The falls is about 8 m. long with a vertical rise of 4 m. and does not have a good pool at the base of the formation, but is not a barrier.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 2: Another bedrock falls 8 m. long with a vertical rise of about 4 m. is found near the start of Section 2. There is a good pool at the base of this falls.

Section 4: Bedrock ceases to be the predominant substrate material. Good quality ASA becomes available and the rearing habitat improves with presence of more large debris. Many coho fry and juveniles were observed in this reach of Sections 4 through 6. A small tributary enters from the right bank. Rearing coho are abundant in the tributary and there may be ASA at high water stages.

Section 5: Braiding of the stream is present.

Section 6: More extensive braiding and channelling take place in this Section. The right channel is surveyed. It is difficult to keep track of the braiding and channels to the left. Area B enters from the left in the maze of braiding and channels in this Section. The channels converge at the end of the Section in a large pool behind a large log jam and below the barrier falls in Section 7.

Section 7: A 10 m. falls forms a complete barrier 15 m. into the Section.

Section 8: A 5 m. barrier falls is present 80 m. into the Section.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Jim Creek - ADF&G No. 102-80-17 Date 5/17/84
Area A

1. Reach	3	3	3	3	4	4	4	4	4
2. Section	10	11	12	13	14	15	16	17	18
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1	3	.75	.5	.25	3	3	3	3
5. Water Quality	1	1	1	1	1	1	1	1	1
6. Water Width a. channel	13	28	11.5	14.5	11	19	18.5	20	24
b. water	12	27	11	14.5	11	19	16.5	15	20
c. special character	-	-	-	-	-	-	-	-	-
7. Water Type % SS	25	15	65	50	20	15	15	40	55
SF	75	80	35	45	10	15	20	40	20
DS				5	70	70	65	20	25
DF		5							
8. Undercut Banks (m) left	45	5	75	5	80	60	40	40	60
right	50	0	75	5	70	70	60	40	60
9. Debris Cover % small	1	0	1	0	1	0	5	1	5
large	1	1	1	1	5	2	15	5	10
10. Riparian Vegetation %						20	15	15	15
11. Substrate %:									
a. boulders	50	10	40	15	20				
b. cobble	30		30	5	30	1		20	20
c. gravel	20		10		20	94	85	65	55
d. sand		10			20	5	15	15	25
e. organic muck					10				
f. bedrock		90	10	80					
g. other									
12. ASA	20	0	10	0	5	10	5	30	30
13. Gravel Shape	2	-	2	-	2	2,3	2	2	2
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)									
16. Beaver Activity	5	5	5	5	5	6	6	6	6
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	-	1/2,3	1/3	1/3	1	-	1	1	1
b. density	-	1/2	3/2	1/2	3	-	3	3	3
19. Sampling	Y	-	-	-	-	Y	-	-	-
20. Rearing Area						70	75	60	60
21. Comments									

Section 10: The substrate is very angular and has sand present interstitially.
 Section 11: A 1 m. falls over bedrock is present 30 m. into the Section. There is poor quality rearing habitat available because of lack of any cover.
 Section 12: The gradient and the water velocity both begin to decrease.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 14: The habitat undergoes a marked transformation. The steep ridges on both sides of the stream are replaced by muskeg. The presence of large debris and undercut banks provide excellent rearing habitat.

Section 15: Sections 15 through 21 were surveyed 6/9/84. The ASA is excellent quality. There is a light silt load present, but the substrate is coarse, loose gravel. The habitat essentially remains constant through Section 21 with excellent rearing habitat and ASA.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Jim Creek Area A ADF&G No. 102-80-17 Date 6/9/84

1. Reach	4	4	4					
2. Section	19	20	21					
3. Section Length (m)	100	100	70					
4. Gradient	3	3	3					
5. Water Quality	1	1	1					
6. Water Width a. channel	19	16	16.4					
b. water	19	16	16					
c. special character	-	-	1					
7. Water Type % SS	30	20	20					
SF		55	50					
DS	70	25	15					
DF								
8. Undercut Banks (m) Left	90	20	40					
right	50	10	40					
9. Debris Cover % small	0	3	5					
large	3	10	15					
10. Riparian Vegetation %	15	15	15					
11. Substrate %:								
a. boulders								
b. cobble	25	30	40					
c. gravel	65	50	40					
d. sand	15	20	20					
e. organic muck								
f. bedrock								
g. other								
12. ASA	5	40	50					
13. Gravel Shape	2	2	2					
14. Streambank Vegetation								
a. percentage	100	100	100					
b. type	B	B	B					
15. Average Depth (cm)	60	60	30					
16. Beaver Activity	6	6	6					
17. Potential Barrier	-	-	-					
18. Aquatic Vegetation								
a. type	1	1	1					
b. density	3	3	3					
19. Sampling	-	-	-					
20. Rearing Area	80	20	30					
21. Comments								

Section 21: The stream forks into two equal channels 70 m. into the Section. The quality of the ASA has decreased because the substrate has become more compact and more sand is present. A moderate moss growth is present in the areas that contain slower velocity water.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Jim Creek Area A ADF&G No. 102-80-17 Date 9/3/84

1. Reach	4	4	4	4	4	4	4	5	5
2. Section	22	23	24	25	26	27	28	29	30
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	3	3	3	3.5	3	3	3	3	3
5. Water Quality	3	3	3	3	3	3	3	3	3
6. Water Width a. channel	11.3	15.5	19	13	13.5	18.5	13	6.8	10
b. water	11.3	15.5	19	13	13.5	18.5	13	6.8	10
c. special character	3	3	3	3	-	1	1	1	1
7. Water Type % SS	10	15	10	5	5	5	5	5	5
SF	45	35	40	45	50	60	60	60	60
DS	10	15	10	10	10	5	5	5	5
DF	35	35	40	40	35	30	30	30	30
8. Undercut Banks (m) left	20	20	30	20	30	20	20	20	20
right	60	40	30	20	40	30	20	20	20
9. Debris Cover % small	2	3	2	1	2	2	3	2	3
large	10	12	10	10	13	12	12	10	12
10. Riparian Vegetation %	10	10	10	10	10	10	10	10	10
11. Substrate %:									
a. boulders						13	25	32	50
b. cobble	55	50	60	65	70	80	72	65	47
c. gravel	40	40	35	30	28	6	2	2	2
d. sand	5	10	5	5	2	1	1	1	1
e. organic muck									
f. bedrock									
g. other									
12. ASA	70	40	70	60	60	50	50	30	10
13. Gravel Shape	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3	2,3
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	A	A	A	A	A	A	A	A	A
15. Average Depth (cm)	30	50	15	35	50	30	35	50	35
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	-	-	-	-
18. Aquatic Vegetation									
a. type	1/3	1/3	1/3	1/3	1	1,3	1	1	1
b. density	3/2	3/2	3/2	3/2	3	2	3	3	2
19. Sampling	-	-	-	-	-	-	-	-	-
20. Rearing Area	20	25	20	10	10	10	10	10	10
21. Comments									

Section 21: The survey was resumed on 9/3/84. The stream was in a high water stage and the stream's temperature and pH were 11.5°C and 6.5 respectively. Section 22 was started at a fork at the mainstem. The right fork was surveyed. The left fork is about 200 m. long and averages 11.5 m. in width. The habitat was similar to the right fork and contained 70% ASA also. The left branch rejoined the right branch 70 m. into Section 24. The many channels and severe braiding made the upper reach very difficult to survey.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 22: The substrate is predominately cobble. The substrate is slightly compact and contains a moderate silt load when disturbed. The water flow was excellent depth and velocity for ASA.

Section 23: This Section contains some good pool area, but most of the rearing habitat is near the banks due to the swift water velocity.

Section 24: The stream velocity exceeds 1.5 m/sec in many places. The stream is high but it is also evident along the banks that the water has been at an even higher stage recently. A major tributary enters from the right bank 20 m. into the Section. The tributaries water temperature was 9.5°C and the flow was estimated at .4 m³/sec. The tributary contains very little ASA, if any, due to a large substrate surrounded by fine gravel and sand. The tributary enters an area with standing water and large snags about 500 m. from the mainstem. The channel that has been to the left since the start of Section 22 rejoins the mainstem 70 m. into the Section.

Section 25: The velocity exceeds 1.5 m/sec in many places. Flood channels along the banks provided some rearing area. The substrate size has increased, but the silt load appears to have decreased and the ASA quality is still quite high. A tributary enters from the left bank at the end of the Section. The left bank contains a swampy area with standing water and large snags and alder and appears to be a beaver area.

Section 27: A tributary enters from the right bank and appears to exit from a large active beaver area.

Section 28: The substrate size and stream velocity and depth increase making it difficult to walk in the stream. A flood channel is paralleling the mainstem on the right bank.

Section 29: The amount of boulders increase and the ASA declines. The stream is very swift and whitewater is evident.

Section 30: The survey was discontinued at the end of the Section. The braiding ends the substrate is primarily compact boulders and cobble. The ASA is probably not good quality, but is still available. The habitat appeared to remain fairly constant for about 1,600 m. before forking. The left fork contains much white water and connects to a lake. The right fork appears to enter a large beaver area with many ponds.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Jim Creek Area B ADF&G No. 102-80-17 Date 5/18/84

1. Reach	1	2	2	3	3	4	4	4	4
2. Section	1	2	3	4	5	6	7	8	9
3. Section Length (m)	100	100	100	100	100	100	100	100	100
4. Gradient	1	4	5	1	1	6	5	3.5	3.5
5. Water Quality	4	3	3	3	3	3	3	3	3
6. Water Width a. channel	16	15	10	8	10	14	12	9.5	7.3
b. water	15	10	10	8	9	10	12	8	7.3
c. special character	-	1	-	-	-	-	-	-	-
7. Water Type % SS	5	10	15	17	18	15	5	5	5
SF	45	80	75	75	75	73	80	75	60
DS	10			5	2				5
DF	40	10	10	3	5	12	15	20	30
8. Undercut Banks (m) left	35	5	15	20	25	5	20	35	5
right	35	3	5	10	25	5	15	30	5
9. Debris Cover % small	10	1	1	1	1	1	1	1	1
large	20	2	5	10	8	5	5	1	1
10. Riparian Vegetation %									
11. Substrate %:									
a. boulders	60	10	90	60	50	70	30	60	10
b. cobble	30	10	10	10	10	10			
c. gravel	10								
d. sand									
e. organic muck									
f. bedrock		80		30	40	30	70	40	90
g. other									
12. ASA	0	0	0	0	0	0	0	0	0
13. Gravel Shape									
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B	B
15. Average Depth (cm)									
16. Beaver Activity	5	5	5	5	5	5	5	5	5
17. Potential Barrier	-	-	-	-	-	2	-	-	2,1
18. Aquatic Vegetation									
a. type	1	1	1/2	1	1/2	1	1	1	1
b. density	3	2	2/3	2	2/3	2	2	2	2
19. Sampling	-	-	-	-	-	Y	-	-	-
20. Rearing Area									
21. Comments									

It is difficult to determine where Area B enters the braided area in Sections 5 and 6 of Area A. There is a massive amount of blowdown in the stream area and on the left upper bank. The left upper bank appears to be unstable with many up rooted trees and slides present. The first 200 m. of Area B is compsed of three channels that is not surveyed due to its severe braiding. The channels average 5 m. in width and 10% ASA. The substrate is angular compact cobble. The rearing habitat is excellent quality with excellent cover provided.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 1: The measured survey is started after 3 channels converge to form the North Fork of 102-80-17. The substrate is predominately bedrock and there is little if any, ASA. The rearing area is not exceptional quality either due to the decrease in debris loading and undercut banks. The flow was estimate by the Embury method to be $2.3 \text{ m}^3/\text{sec}$. Heavy rains have nearly doubled the size of some tributaries from the previous day.

Section 2: The gradient increases and midway through the Section is a series of small bedrock falls. There is a maximum of a 3m. rise over a 5m. distance and the falls are not barriers.

Section 3: A small tributary enters from the right bank. Good rearing is provided, but the substrate is mossy boulders and there is little, if any ASA. A 2 m. cascading falls is present 50 m. into the Section, but is not likely a barrier.

Section 4: The gradient decreases and there is a slight increase in the debris loading for the next two Sections.

Section 6: A 2.5 m. falls over bedrock is present at the start of the Section. The falls may not be a barrier to coho, but may be a PS and CS barrier. A side channel that provides good rearing habitat leaves from the left bank and joins the mainstem again in Section 7. The gradient increases and the stream essentially becomes a bedrock channel.

Section 7: Another 2 m. falls is present 50 m. into the Section.

Section 9: A probable combination velocity barrier and 3 m. falls is present midway through the Section. There is 20 m. of swift steep bedrock with no pools.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Jim Creek Area B ADF&G No. 102-80-17 Date 5/18/84

1. Reach	4							
2. Section	10							
3. Section Length (m)	100							
4. Gradient	3.5							
5. Water Quality	3							
6. Water Width a. channel	6.5							
b. water	6.5							
c. special character	-							
7. Water Type % SS	5							
SF	65							
DS								
DF	10							
8. Undercut Banks (m) left	5							
right	5							
9. Debris Cover % small	1							
large	1							
10. Riparian Vegetation %								
11. Substrate %:								
a. boulders	10							
b. cobble								
c. gravel								
d. sand								
e. organic muck								
f. bedrock	90							
g. other								
12. ASA	0							
13. Gravel Shape	2							
14. Streambank Vegetation								
a. percentage	100							
b. type	B							
15. Average Depth (cm)								
16. Beaver Activity	5							
17. Potential Barrier	-							
18. Aquatic Vegetation								
a. type	1							
b. density	2							
19. Sampling	-							
20. Rearing Area								
21. Comments								

Section 10: The survey is discontinued at the end of Section 10. There has been no ASA and little rearing habitat since Section 1. Very few rearing fish have been observed. A reconnaissance above here found the fisheries habitat to improve about 150 to 200 m. upstream. The gradient decreases to between .5 and 1% and the bedrock substrate changes to a gravel/cobble mixture. There is a good mix of riffle and pool areas. The debris loading and amount of undercut banks contribute to excellent rearing habitat. Very few rearing fish were observed and positive identification was difficult due to the dark water color. This reach is about 300 m. long and contains about 15% ASA. The substrate is fair quality due to its angular shape and the slight to moderate silt load. The substrate size increases towards the end of the 300m. stretch. The survey was discontinued and it appears the stream enters an area of braiding and heavy windfall.

FISH SAMPLING FORM

ADF&G No. Jim Creek Date 102-80-17 Stream Name 5/17/84
 Survey Area A H₂O Temp. 8-8.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1500	1530	Ø	coho fry observed Section 1
2	1145	1215	SS 58mm	Section 6
3	1310	1420	Ø	Section 10 no fry observed
4	0830	0930	Ø	Section 14 6/9/84 9°C

FISH SAMPLING FORM

ADF&G No. 102-80-17 Date 5/18/84 Stream Name Jim Creek
Survey Area B H₂O Temp. 7.50C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1130	1215	1 CT 76 mm 1 DV 60 mm	Section 6
2	1130	1215	Ø	Section 6
3	1345	1445	Ø	Section 6
4	1330	1425	Ø	in area above survey

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-2 2. Historical Fish

Part II.

1. Stream Name Clarence Strait #3 2. ADF&G Catalog No.

3. USGS Map No. Craig C-1 4. Legal Location R86E,T72S,S-26

5. Latitude and Longitude 55°35'50", 132°11'10" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,205,9-14-73,02190 8. MGMT Area K29-721

9. Estimated Flow .03 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7.5°C

15. pH 6.5 16. Intertidal Zone a. Gradient 5

b. Bottom type 1. fines 2. gravel/small cobble 100

3. large cobble/boulders/bedrock

c. ASA at least a 10 m. stretch of good ASA is present

d. Schooling high tide

e. Shellfish potential high tide

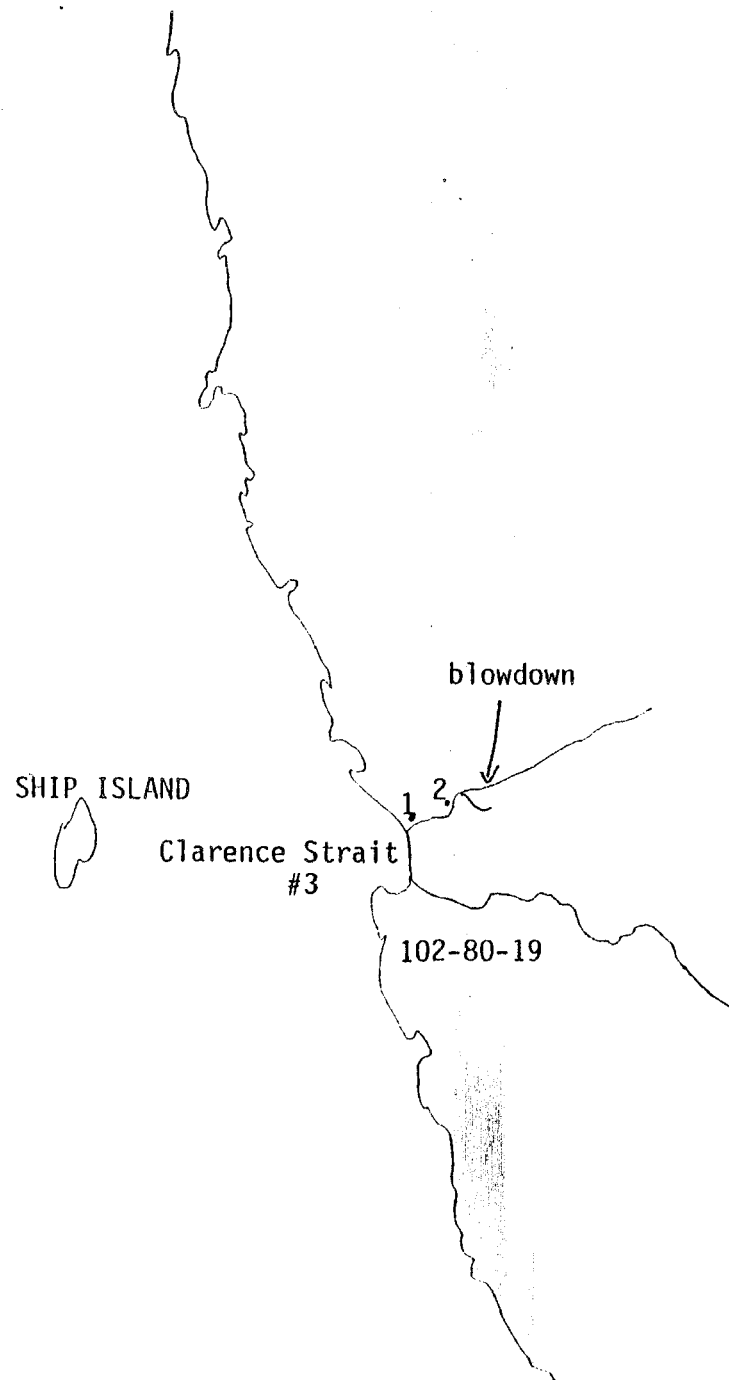
f. Anchorage unprotected

17. Comments

The survey was done at high tide and only a 10 m. stretch of ITZ was visible. The substrate contained little sand or aquatic vegetation. Several logs have been piled up by tide action at the mouth of the stream. Clarence Strait #3 contains a small amount of poor quality ASA. The substrate is primarily angular shaped large cobble and boulders. Stretches of bedrock are also present. The stream may be limited by its shallow water depth. No rearing fish were observed or captured. The small stream forks into two even smaller branches with little fisheries potential 150 m. above the ITZ.

18. Investigators Cariello 19. Weather 1

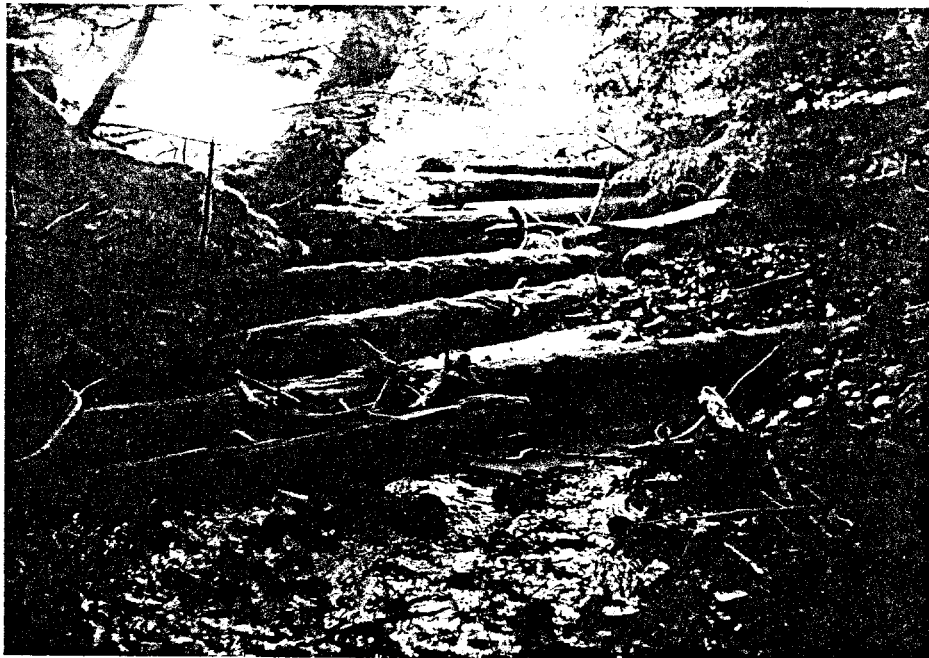
20. Date 6/2/84 21. Time 1515-1715



Clarence Strait #3



1. Bedrock and debris in the upper ITZ.



2. Downstream view of log jam at the mouth.

Clarence Strait #3



3. Typical habitat in Section 1.

Clarence Strait #3

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	2.2	5	11					
2	100	1.5	5	7.5					
Total				18.5m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Clarence Strait #3 ADF&G No. _____ Date 6/2/84

1. Reach	1	1						
2. Section	1	2						
3. Section Length (m)	100	100						
4. Gradient	4	5						
5. Water Quality	1	1						
6. Water Width a. channel	4	2						
b. water	2.2	1.5						
c. special character	-	1						
7. Water Type % SS	40	60						
SF	50	40						
US	10							
DF	0							
8. Undercut Banks (m) left	0	0						
right	5	0						
9. Debris Cover % small	1	5						
large	10	10						
10. Riparian Vegetation %	15	30						
11. Substrate %:								
a. boulders	30	30						
b. cobble	45	35						
c. gravel	5	10						
d. sand	10							
e. organic muck								
f. bedrock	10	25						
g. other								
12. ASA	5	5						
13. Gravel Shape	2	2						
14. Streambank Vegetation								
a. percentage	100	100						
b. type	B	B						
15. Average Depth (cm)	3.8	20						
16. Beaver Activity	5	5						
17. Potential Barrier	3	2						
18. Aquatic Vegetation								
a. type	3	1,3						
b. density	3	2						
19. Sampling	Y	-						
20. Rearing Area	30	40						
21. Comments								

Section 1: A good rearing pool is present 10 m. into the Section, but no rearing fish were observed or captured. There is little ASA due to the large size and angular shape of the substrate.

Section 2: A small tributary with an estimated flow of .01 m³/sec enters from the left bank. The tributary meanders through heavy debris for 35 m. before a small bedrock falls 15 m. long was observed. The present flow is inadequate for fish passage.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 2, continued: Braiding is present midway through the Section in the mainstem. The stream forks into two branches with each having an estimated flow of $.01 \text{ m}^3/\text{sec}$. There is a large amount of blowdown present and thick stand of young alders along the stream. The right fork is about 1 m. width and enters a small V-notch. The substrate is predominately bedrock with some large cobble and boulders present. The left branch has a 2.5 m. falls present 50 m. beyond the fork. The heavy blowdown and debris continue on the left fork. There are some patches of usable gravel present, but the average water depth of 2.5 cm. negates the presence of any ASA at the present flow.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/2/84 Stream Name Clarence Strait#3
 Survey Area A H₂O Temp. 7.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1515	1545	Ø	Set in pool 10 m. into Section #1
2	1645	1715	Ø	Set in pool on small tributary entering from left bank 10 m. into Section 10.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-8 2. Historical Fish ps

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 102-80-19

3. USGS Map No. Craig C-1 4. Legal Location R86E,T72S, S-26

5. Latitude and Longitude 55° 35' 45", 132° 11' 11" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,205,9-14-73,02190 8. MGMT Area K29-712

9. Estimated Flow .06 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical near fish trap site

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7°C

15. pH 7 16. Intertidal Zone high tide a. Gradient high tide

b. Bottom type 1. fines _____ 2. gravel/small cobble _____

3. large cobble/boulders/bedrock _____

c. ASA _____

d. Schooling _____

e. Shellfish potential _____

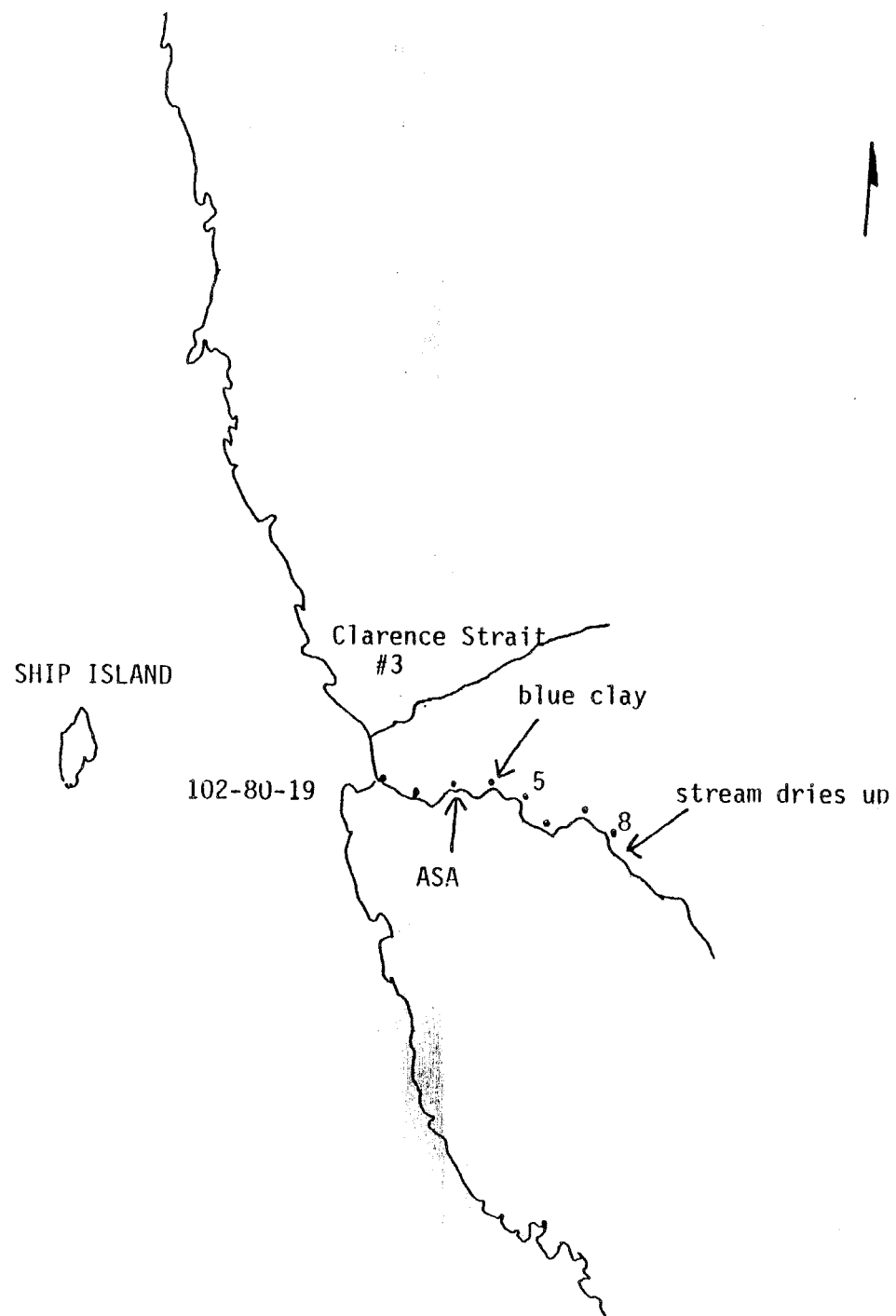
f. Anchorage small and not well protected

17. Comments

The survey was done at high tide so little ITZ information could be collected. 102-80-19 is limited by its steep gradient and small amount of ASA. Several small debris obstacles are present in the first Seciton. The best ASA was found in Section 4 through 6. The ITZ ASA could not be determined due to the tide stage. There was little rearing area provided in the stream either. No rearing fish were observed or captured. The stream dries up about 850 m. from the beach.

18. Investigators Burns 19. Weather 1

20. Date 6/2/84 21. Time 1500-1730





1. Section 1: Poor ASA and rearing habitat.



2. Potential debris barrier near the end of Section 1.

102-80-19



3. Section 7: Typical habitat in upper reach.

102-80-19

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	3.4	1	3.4					
2	100	1.5	5	7.5					
3	100	1.0	10	10					
4	100	2.1	1	2.1					
5	100	4.7	5	23.5					
6	100	2.0	1	2.0					
7	100	2.6	1	2.6					
8	100	2.7	0	0					
Total				51.1m ²					

● BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 102-80-19 Date 6/2/84

1. Reach	1	2	3	4	4	4	4	4
2. Section	1	2	3	4	5	6	7	8
3. Section Length (m)	100	100	100	100	100	100	100	100
4. Gradient	5	10	8	6	6	9	5	10
5. Water Quality	1	1	1	1	1	1	1	1
6. Water Width a. channel	5.4	4.4	3.1	2.1	4.7	4.3	3	7.0
b. water	3.4	1.5	1	2.1	4.7	2	2.6	2.7
c. special character	-	-	-	1	-	-	-	1
7. Water Type % SS	15	5	20	20	20	20	18	10
SF	80	95	80	79	80	79	80	90
US	5	5		1		1	2	
DF								
8. Undercut Banks (m) left	1	1	1	1	1	1	1	1
right	1	1	1	1	1	1	1	1
9. Debris Cover % small	5	5	1	1	5	5	1	1
large	20	10	10	10	15	10	15	15
10. Riparian Vegetation %	10	15	15	15	20	10	10	10
11. Substrate %:								
a. boulders	20	10	40	39	50	40	30	39
b. cobble	60	5	40	40	40	40	30	40
c. gravel	20	5	20	20	10	20	10	20
d. sand								
e. organic muck								
f. bedrock		80					30	1
g. other								
12. ASA	1	5	10	1	5	1	1	0
13. Gravel Shape	2	2	2	2	2	2	2	2
14. Streambank Vegetation								
a. percentage	100	100	100	100	100	100	100	100
b. type	B	B	B	B	B	B	B	B
15. Average Depth (cm)	5	5	7.5	7.5	5	9	9	7.5
16. Beaver Activity	5	5	5	5	5	5	5	5
17. Potential Barrier	3	-	-	-	-	-	-	-
18. Aquatic Vegetation								
a. type	-	-	-	-	-	-	-	-
b. density	-	-	-	-	-	-	-	-
19. Sampling	-	-	Y	-	-	Y	-	-
20. Rearing Area	15	10	25	15	15	15	15	10
21. Comments								

Section 1: Several debris falls are present towards the end of the Section. Although the vertical rise is only about 1 m. in each of them, the lack of a pool below them and the presence of tree limbs could make fish passage difficult at normal or low flow. The ASA is not good quality and there is little rearing habitat available. Section 2: The gradient increases and bedrock is the predominate substrate in this Section. The channel and bank show signs of the presence of high swift water flows. Section 3: This Section contains the best ASA found in the stream. Recent blowdown

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3, continued: across the stream from the right bank has exposed a large patch of blue clay on the upper bank.

Section 4: Limited braiding with the stream channel is present. The good quality ASA diminishes in this Section and little ASA is found for the remainder of the survey.

Section 5: The left bank is unstable. A 10 m. Section of the bank is susceptible to blowdown and slumping. Blue clay is exposed again.

Section 8: The survey is discontinued at the end of the Section. The stream dries up 50 m. beyond the end of the Section. A dry channel with a substrate of large boulders continues up the hill at an 18% gradient.

FISH SAMPLING FORM

ADF&G No. 102-80-19 Date 6/2/84 Stream Name _____
 Survey Area A H₂O Temp. 7⁰C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1555	1710	Ø	Section 3
2	1630	1700	Ø	Section 6

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-3 2. Historical Fish PS

Part II.

1. Stream Name Niblack Hollow 2. ADF&G Catalog No. 102-80-195

3. USGS Map No. Craig C-1 4. Legal Location R86,T72S,S-36

5. Latitude and Longitude 55°34'53", 132°9'35" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,203,9-14-73,02190 8. MGMT Area K29-713

9. Estimated Flow .15 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical old cabin near mouth

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7°C

15. pH 16. Intertidal Zone a. Gradient 7

b. Bottom type 1. fines 10 2. gravel/small cobble 25

3. large cobble/boulders/bedrock 65

c. ASA poor

d. Schooling no schooling areas

e. Shellfish potential no shellfish observed

f. Anchorage poor - unprotected to the south

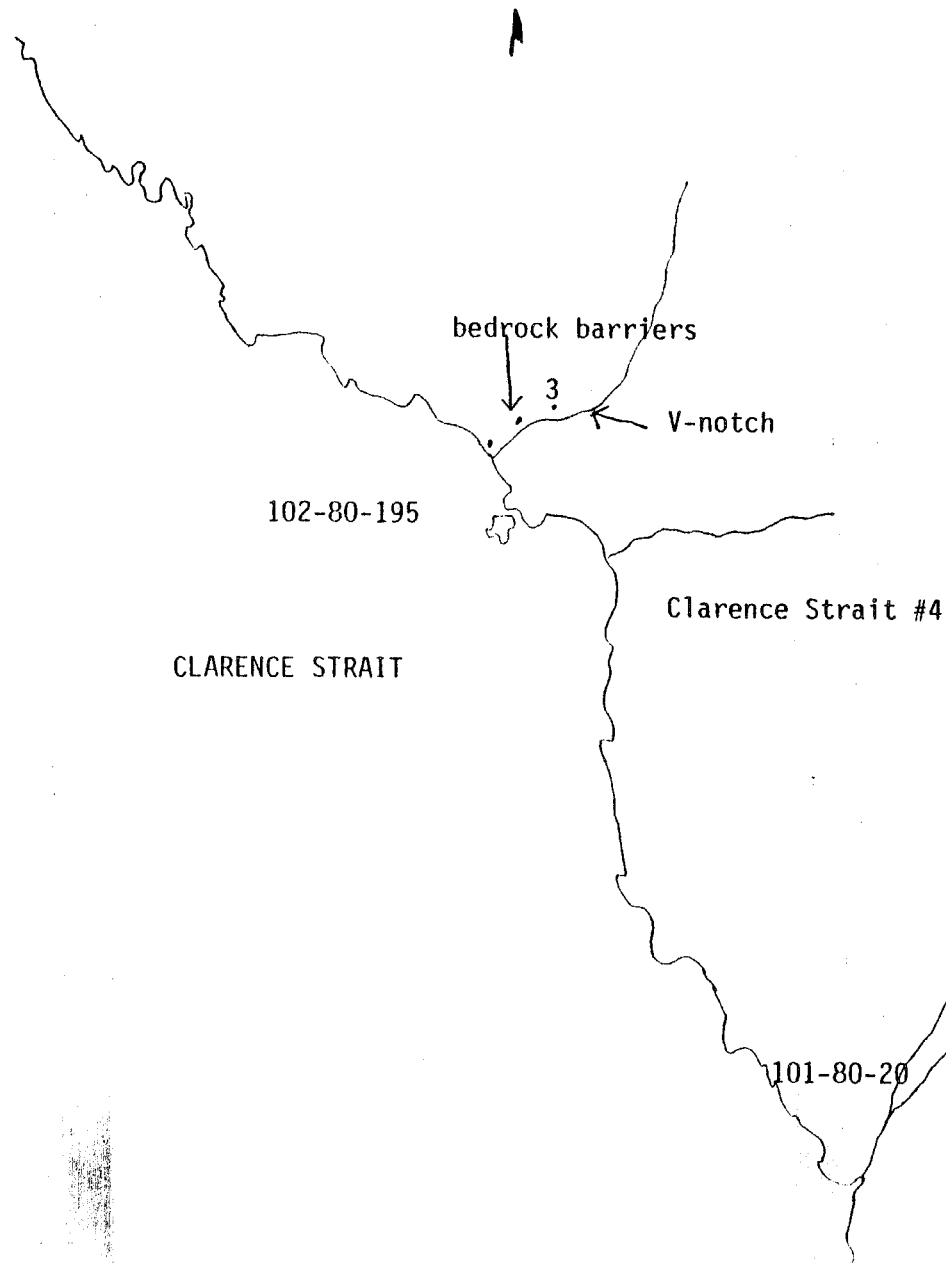
17. Comments

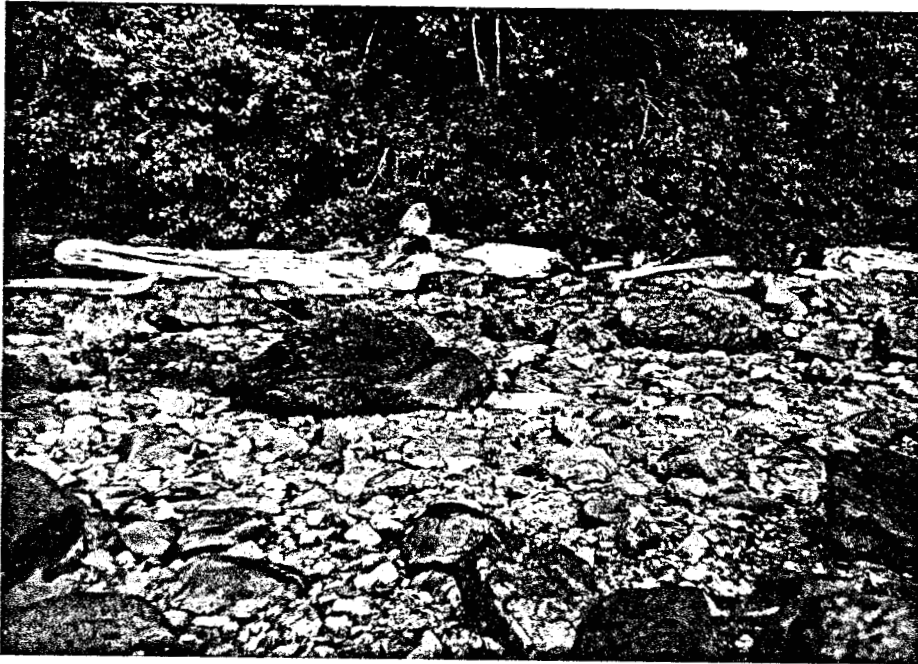
The ITZ had no defined channel. The stream spreads out among boulder and large cobble. A 1 m. debris falls over a log is present at the upper end of the ITZ. The pool below it is less than 30 cm deep, but the obstacle is probably passed at a high tide.

102-80-195 has little ASA and a very steep gradient. A series of potential barriers are present starting 100 m. from the ITZ. There is little rearing area provided other than plunge pools and no rearing fish were observed or captured. The substrate is primarily boulders and bedrock.

18. Investigators Cariello 19. Weather 2

20. Date 6/6/84 21. Time 0900-1045





1. ITZ. the ITZ contained no definite channel.



2. Section 1: The substrate is predominately boulders.



3. The gradient increases to 20% at the end of Section 1.

102-80-195

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	2	5	10					
2	100	3.4	3	10.2					
3	100	3.2	0	0					
Total				20.2m ²					
Available ASA below barrier				10 m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Niblack Hollow ADF&G No. 102-80-195 Date 6/6/84

1. Reach	1	1	1					
2. Section	1	2	3					
3. Section Length (m)	100	100	100					
4. Gradient	10	20	18					
5. Water Quality	1	1	1					
6. Water Width a. channel	4	3.4	3.2					
b. water	2	3.4	3.2					
c. special character	-	-	-					
7. Water Type % SS	20	10	5					
SF	70	70	75					
DS	5	5	5					
DF	5	15	15					
8. Undercut Banks (m) left	0	0	0					
right	0	0	0					
9. Debris Cover % small	0	0	0					
large	10	5	5					
10. Riparian Vegetation %	10	10	10					
11. Substrate %:								
a. boulders	60	30	30					
b. cobble	20	10	10					
c. gravel	10	10	10					
d. sand	5	5	5					
e. organic muck								
f. bedrock	5	45	45					
g. other								
12. ASA	5	3	0					
13. Gravel Shape	2	2	2					
14. Streambank Vegetation								
a. percentage	100	100	100					
b. type	B	B	B					
15. Average Depth (cm)	10	12.5	40					
16. Beaver Activity	5	5	5					
17. Potential Barrier	-	2	2					
18. Aquatic Vegetation								
a. type	3	3	3					
b. density	2	2	2					
19. Sampling	Y	-	-					
20. Rearing Area	5	5	0					
21. Comments								

Section 1: There is very little rearing habitat due to the stream's high velocity and a lack of debris in the water. The ASA is minimal also. The gradient is 10% and increasing.

Section 2: This Section is a series of bedrock falls. The first barrier is a 1.75 falls over bedrock with no pool provided. A series of 1.5 m. falls with pools follow a Section of bedrock with a 45% gradient and a 3 m. vertical rise is found 60 m. into

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 2, continued: the Section. Boulders are piled over a meter high on top of debris on the bank and it appears the stream may have intermittent high discharges.

Section 3: The stream continues as a series of falls through a V-notch. The banks are predominately vertical bedrock. The stream forks into three branches 75 m. into the Section. The survey was discontinued. No rearing fish were observed or captured.

FISH SAMPLING FORM

ADF&G No. 102-80-195 Date 6/6/84 Stream Name Niblack Hollow
 Survey Area A H₂O Temp. 7.0 Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0900	0930	Ø	30 m. into Sec. 1 No places in upper Sections worth setting traps.

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-3 2. Historical Fish

Part II.

1. Stream Name Clarence Strait #4 2. ADF&G Catalog No.

3. USGS Map No. Craig C-1 4. Legal Location R86E,T72S,S-36

5. Latitude and Longitude 55°31'45", 132°09'38" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,203,9-14-73,02190 8. MGMT Area K29-713

9. Estimated Flow .07 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7.25°C

15. pH 16. Intertidal Zone a. Gradient 7

b. Bottom type 1. fines 5 2. gravel/small cobble 95

3. large cobble/boulders/bedrock

c. ASA poor-no definite channel

d. Schooling no schooling area

e. Shellfish potential no shellfish potential

f. Anchorage poor-unprotected to the south

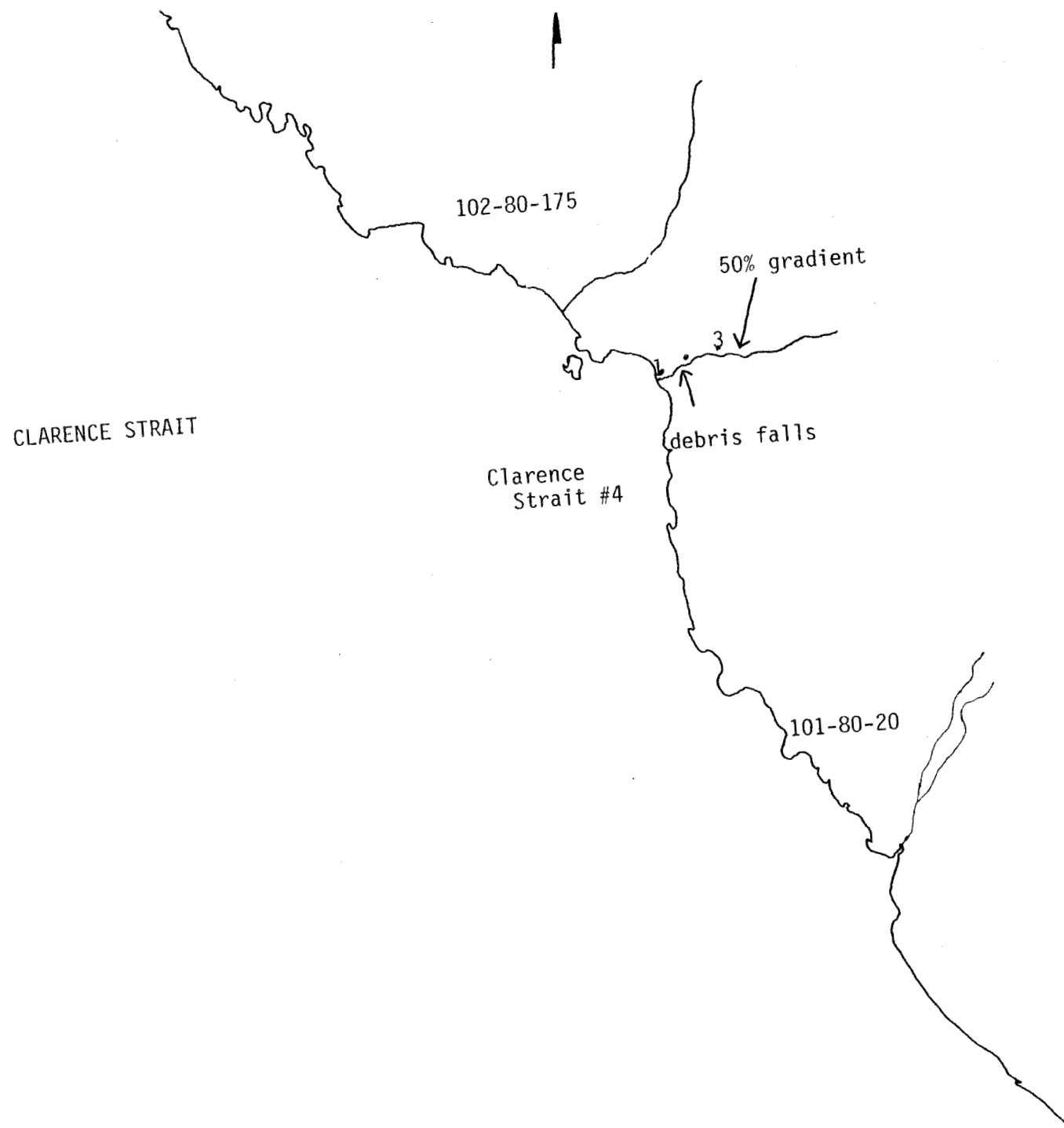
17. Comments

There is no definite channel in the ITZ. A possible debris barrier is present at the upper end of the ITZ. Another small stream about .03 m³/sec, is present 30 m. to the left of Clarence Strait #4. The other stream however, goes subsurface in the upper ITZ.

Clarence Strait #4 has little fisheries potential. A small amount of ASA is present early in Section 1, but a series of potential debris barriers begin midway through the Section. More barriers are present in Sections 2 and 3. The gradient increases to 50%. No rearing fish were observed or captured.

18. Investigators Cariello 19. Weather 2

20. Date 6/6/84 21. Time 1050-1230



Clarence Strait #4



1. ITZ: no definite channel



2. Section 1: The gradient increases midway through the Section.

Clarence Strait #4

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	1.5	30	45					
2	100	2.0	10	20					
3	100	1.75	5	8.75					
Total				73.75m ²					
Available ASA below barrier				0m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Clarence Strait #4ADF&G No. Date 6/6/84

1. Reach	1	2	2						
2. Section	1	2	3						
3. Section Length (m)	100	100	100						
4. Gradient	12	22	20						
5. Water Quality	1	1	1						
6. Water Width a. channel	3.5	3	3						
b. water	1.5	2	1.75						
c. special character	-	-	-						
7. Water Type % SS	20	5	10						
SF	80	90	90						
DS									
DF		5							
8. Undercut Banks (m) left	15	0	0						
right	15	0	0						
9. Debris Cover % small	5	25	5						
large	20	25	15						
10. Riparian Vegetation %	20	30	40						
11. Substrate %:									
a. boulders	25	45	50						
b. cobble	45	30	30						
c. gravel	25	10	15						
d. sand	5	5	5						
e. organic muck									
f. bedrock		10							
g. other									
12. ASA	30	10	5						
13. Gravel Shape	2	2	2						
14. Streambank Vegetation									
a. percentage	100	100	100						
b. type	B	B	B						
15. Average Depth (cm)	3.8	7.6	7.6						
16. Beaver Activity	5	5	5						
17. Potential Barrier	2	2	2						
18. Aquatic Vegetation									
a. type	3	3	3						
b. density	2	2	2						
19. Sampling	Y	-	Y						
20. Rearing Area	25	10	5						
21. Comments									

Section 1: A series of plungepools and debris falls begin 30 m. into the Section. There are several possible barriers in this stretch due to debris falls and a lack of a pool beneath the falls.

Section 2: The gradient is a consistent 20%. The series of small falls up to 1m. in length continue in this Section and through Section 3. No rearing fish were observed. The survey discontinued at the end of Section 3. The gradient increases to 50% and there is little fisheries habitat.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/6/84 Stream Name Clarence Strait #4
 Survey Area A H₂O Temp. 7.25 Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1055	1120	Ø	Section 1
2	1145	1215	Ø	Section 3

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-4 B 1-4 2. Historical Fish PS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 102-80-20

3. USGS Map No. Craig C-1 4. Legal Location R86E,T73S,S-2

5. Latitude and Longitude 55°33'50", 132°9'10" 6. Agency Unit 05

7. Aerial Photo No. 0024,1873,203,9-14-73,02190 8. MGMT Area K29-713

9. Estimated Flow .2m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7.5°C

15. pH 7.5 16. Intertidal Zone _____ a. Gradient 5

b. Bottom type 1. fines 5 2. gravel/small cobble 40

3. large cobble/boulders/bedrock 55

c. ASA poor

d. Schooling only in Clarence Strait

e. Shellfish potential only mussels were observed

f. Anchorage fair, not well protected at high tide

17. Comments

The upper ITZ has a substrate composed primarily of boulders covered by filamentous algae.

102-80-20 forked into two small branches that have small amounts of fair quality ASA. Both branches however, end in barrier falls within 400 m. The stream has a rather steep gradient and limited rearing area. No rearing fish were observed but two DV were captured in minnow traps.

18. Investigators Burns/Cariello 19. Weather 2

20. Date 6/6/84 21. Time 0800-1145

CLARENCE STRAIT

102-80-20

Area B

30% gradient

4.

Area A

unstable bank

102-80-21



1. ITZ



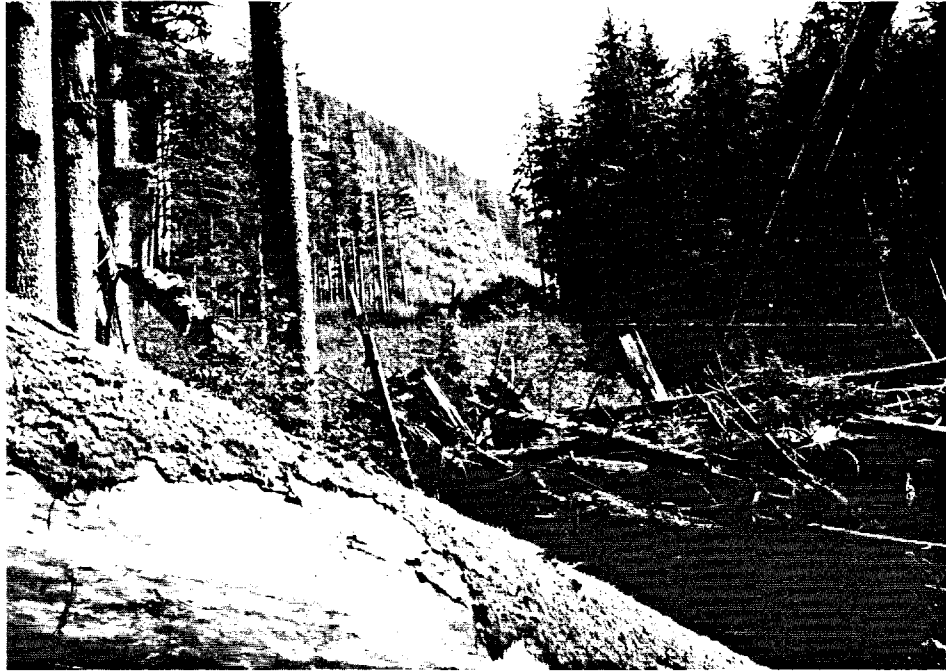
2. Debris obstacle 20 m. into Section 1.



3. Section 1 contains the stream's best ASA.



4. End of Section 4: Start of probable barrier.



5. Large slide and blowdown on hillside above survey area.



6. End of Section 4.

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	2.8	10	28					
2	100	7.0	1	7.0					
3	100	3.0	10	30					
4	100	2.8	10	28					
Total Area A				93 m ²					
Available ASA below barrier				65 m ²					
1	100	2	5	10					
2	100	1.5	5	7.5					
3	100	2.1	10	21					
4	100	1	1	1					
Total Area B				39.5m ²					
Available ASA below barrier				38.5m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area A ADF&G No. 102-80-20 Date 6/6/84

1. Reach	1	2	2	3					
2. Section	1	2	3	4					
3. Section Length (m)	70	100	100	100					
4. Gradient	7	8	9	9					
5. Water Quality	1	1	1	1					
6. Water Width a. channel	5.4	14	4	6					
b. water	2.8	7	3	2.8					
c. special character	-	-	-	-					
7. Water Type % SS	30	30	40	40					
SF	70	70	60	60					
US									
DF									
8. Undercut Banks (m) left	1	5	20	20					
right	1	1	20	20					
9. Debris Cover % small	1	5	10	10					
large	10	20	40	40					
10. Riparian Vegetation %	5	40	40	20					
11. Substrate %:									
a. boulders	10	80	40	35					
b. cobble	50	10	25	30					
c. gravel	40	10	25	30					
d. sand			5	5					
e. organic muck									
f. bedrock									
g. other									
12. ASA	10	1	10	10					
13. Gravel Shape	2	2	2	2					
14. Streambank Vegetation									
a. percentage	100	100	100	100					
b. type	B	B	B	B					
15. Average Depth (cm)	10	7.6	10	7.6					
16. Beaver Activity	5	5	5	5					
17. Potential Barrier	2	-	2,3	-					
18. Aquatic Vegetation									
a. type	-	-	-	-					
b. density	-	-	-	-					
19. Sampling	-	Y	-	Y					
20. Rearing Area	30	25	35	40					
21. Comments									

Section 1: A 1 m. debris falls 20 m. into the Section with no pool is a possible PS barrier. The ASA is fair quality due to its compactness. The rearing habitat lacks any undercut banks or overhanging riparian vegetation. The stream forks into equal branches 70 m. into the Section. The left fork was surveyed as Area B. The right fork continued as Area A.

Section 2: An unstable left bank exists in an area of recent blowdown.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 3: There is a large amount of old blowdown from south wind on the right upper bank. The right upper bank is unstable in spots. There is a heavy debris load in the stream that forms several possible barriers or obstructions.

Section 4: A small trickle enters from the left bank. The Section ends at the base of a bedrock chute and series of falls that contribute to make a barrier. The survey was discontinued. Above the 50 m. stretch of bedrock and falls (gradient of 30%) is a 300 m. stretch with a gradient of 8% and a substrate of boulder and large cobble. There are only patches of ASA and the rearing habitat is limited by the lack of debris and undercut banks. The gradient then increases markedly once more and little fisheries habitat is available.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Area B ADF&G No. 102-80-20 Date 6/6/84

1. Reach	1	2	2	3					
2. Section	1	2	3	4					
3. Section Length (m)	50	100	100	100					
4. Gradient	10	5	6	17					
5. Water Quality	1	1	1	1					
6. Water Width a. channel	4.6	2	3	1.5					
b. water	2	1.5	2.1	1					
c. special character	-	-	-	-					
7. Water Type % SS	20	30	30	20					
SF	80	70	70	80					
DS									
DF									
8. Undercut Banks (m) left	1	1	1	1					
right	1	10	25	1					
9. Debris Cover % small	1	10	5	1					
large	1	1	20	5					
10. Riparian Vegetation %	15	10	30	5					
11. Substrate %:									
a. boulders	30	55	50	60					
b. cobble	30	30	25	30					
c. gravel	30	10	10	10					
d. sand		5	5						
e. organic muck									
f. bedrock	10								
g. other									
12. ASA	5	5	10	1					
13. Gravel Shape	2	2	2	2					
14. Streambank Vegetation									
a. percentage	100	100	100	100					
b. type	B	B	B	B					
15. Average Depth (cm)	7.5	7.5	7.5	10					
16. Beaver Activity	5	5	5	5					
17. Potential Barrier	-	-	2	2					
18. Aquatic Vegetation									
a. type	-	-	-	-					
b. density	-	-	-	-					
19. Sampling	-	-	-	Y					
20. Rearing Area	10	20	30	20					
21. Comments									

Section 1: The gradient is steep and there is little rearing habitat or ASA.
 Section 3: The ASA is not good quality due to its compactness and the presence of silt. The lower right bank is unstable and vulnerable to erosion in several places. A brown clay material is exposed by the cut bank. A 1 m. debris falls that is a probable barrier is present.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: A small trickle tributary enters from the right bank at the start of the Section. A 1 m. debris falls is present. The survey was discontinued at the end of Section 4. The gradient increases to 30% and a barrier falls is present. Above the barrier, the gradient continues at a steady 18-20% gradient with little fisheries habitat.

FISH SAMPLING FORM

ADF&G No. 102-80-20 Date 6/6/84 Stream Name

Survey Area A H₂O Temp. 7.5⁰C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0900	1110	DV-50mm	Section 2 Area A
2	0940	1010	Ø	Section 4 Area A

FISH SAMPLING FORM

ADF&G No. 102-80-20 Date 6/6/84 Stream Name _____
 Survey Area B H₂O Temp. 7.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1015	1035	DV-87 mm	Section 4
2	1115	1135	Ø	Section 1

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-7 2. Historical Fish PS,CS,SS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 102-80-21

3. USGS Map No. Craig C-1 4. Legal Location R87E,T73S,S=12

5. Latitude and Longitude 55°38'18",132°07'45" 6. Agency Unit 05

7. Aerial Photo No. 0025,1873,198,9-14-73,02190 8. MGMT Area K29-713

9. Estimated Flow 4 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5,1

13. Access 2 14. Stream Temperature 10°C

15. pH 7.5 16. Intertidal Zone _____ a. Gradient 5

b. Bottom type 1. fines 1 2. gravel/small cobble 1

3. large cobble/boulders/bedrock 98

c. ASA poor - substrate predominately boulders and bedrock

d. Schooling only in Clarence Strait

e. Shellfish potential only mussels were observed

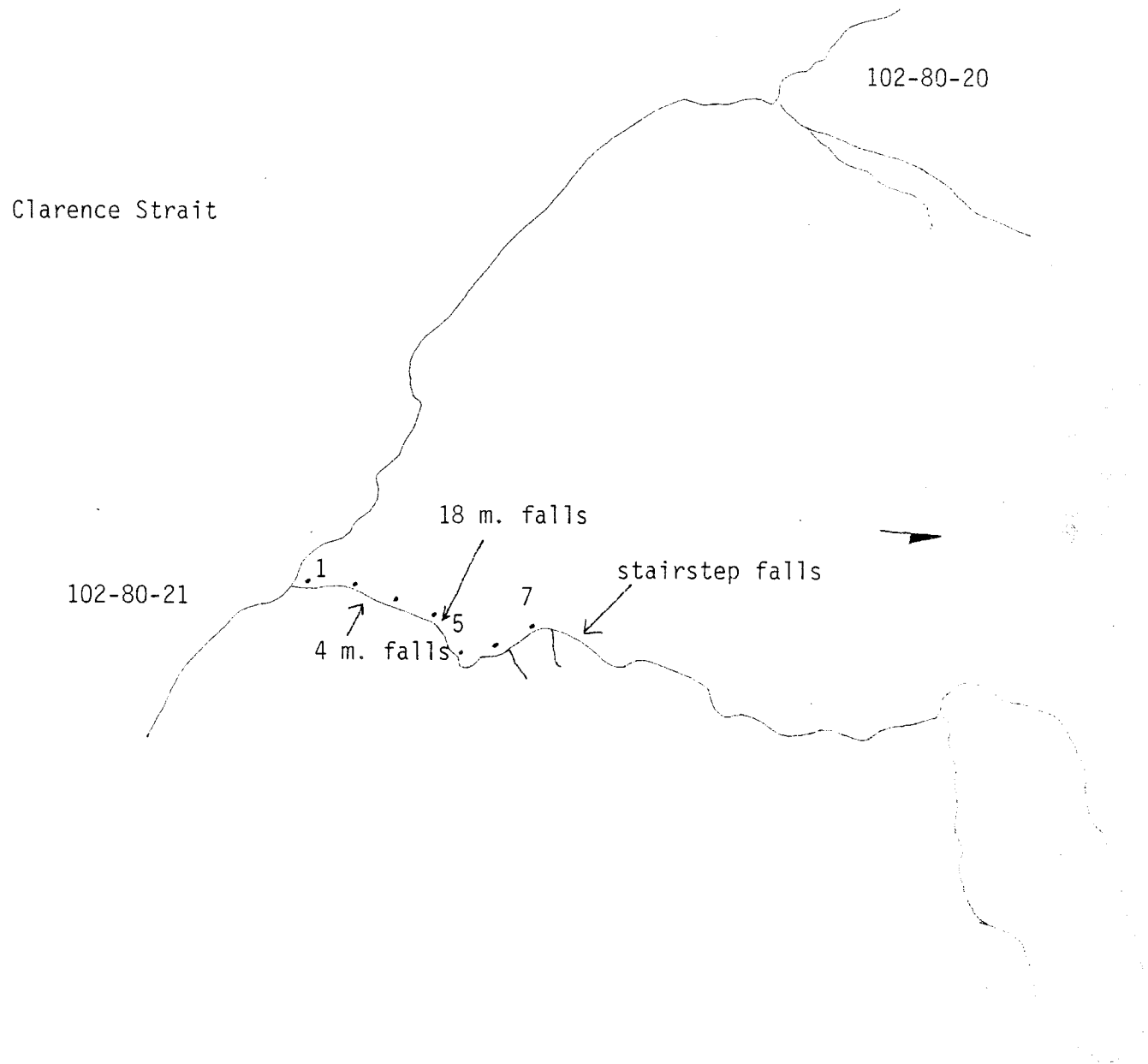
f. Anchorage poor - not well protected

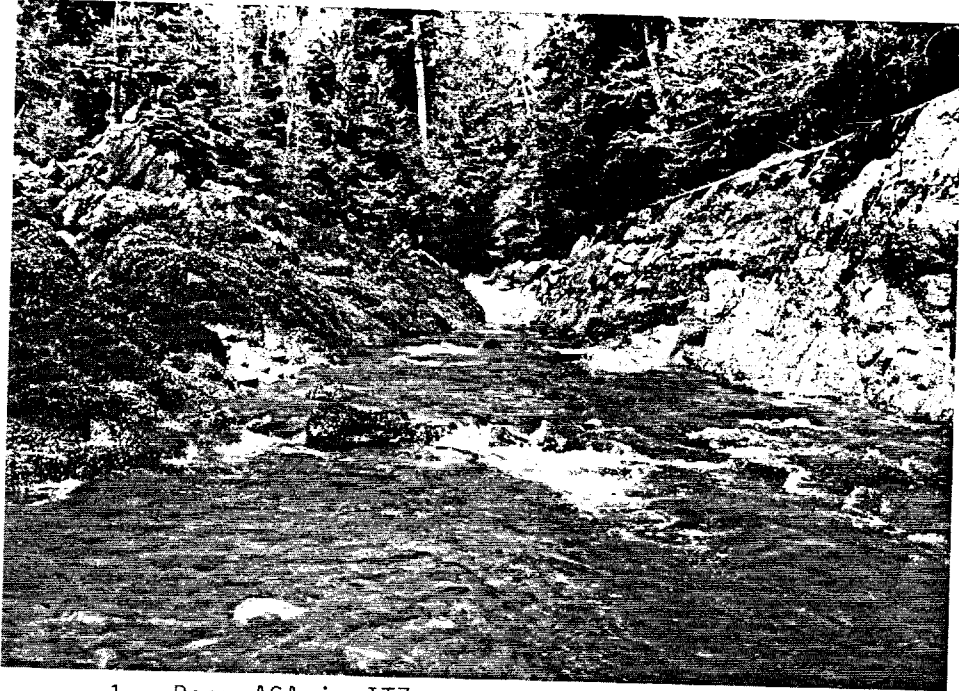
17. Comments

108-80-21 is a large swift stream with little ASA or rearing habitat. A barrier falls is present 150 m. from the beach. Two more large barriers are present within 500 m. of the first falls. The substrate is primarily bedrock and there is practically no cover for rearing habitat. Deep pools provide just about all the rearing habitat. No rearing fish were observed or captured.

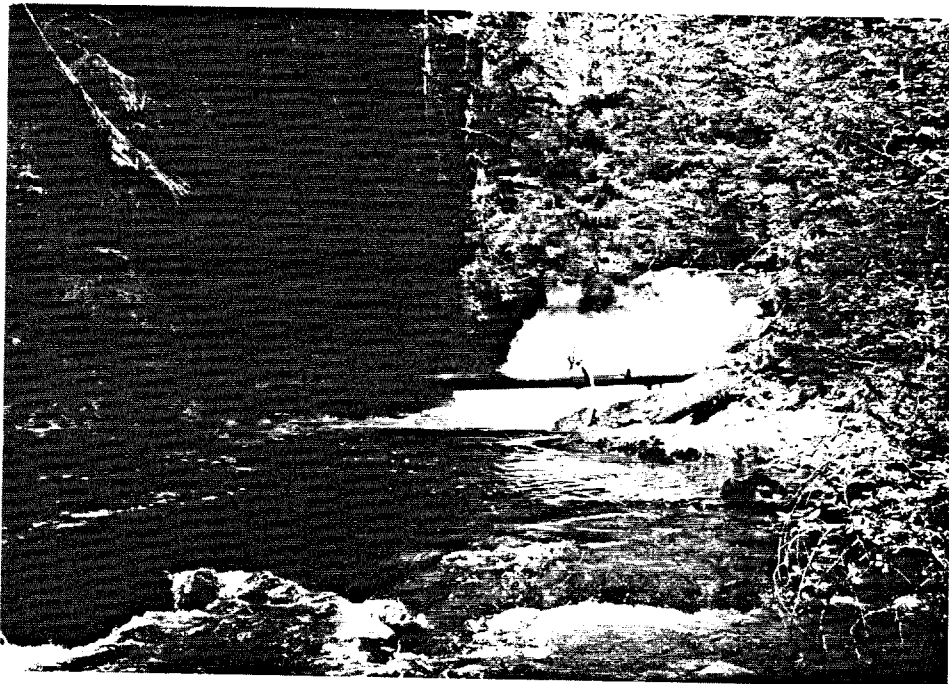
18. Investigators Burns/Cariello 19. Weather 2

20. Date 6/6/84 -461- 21. Time 1315-1615

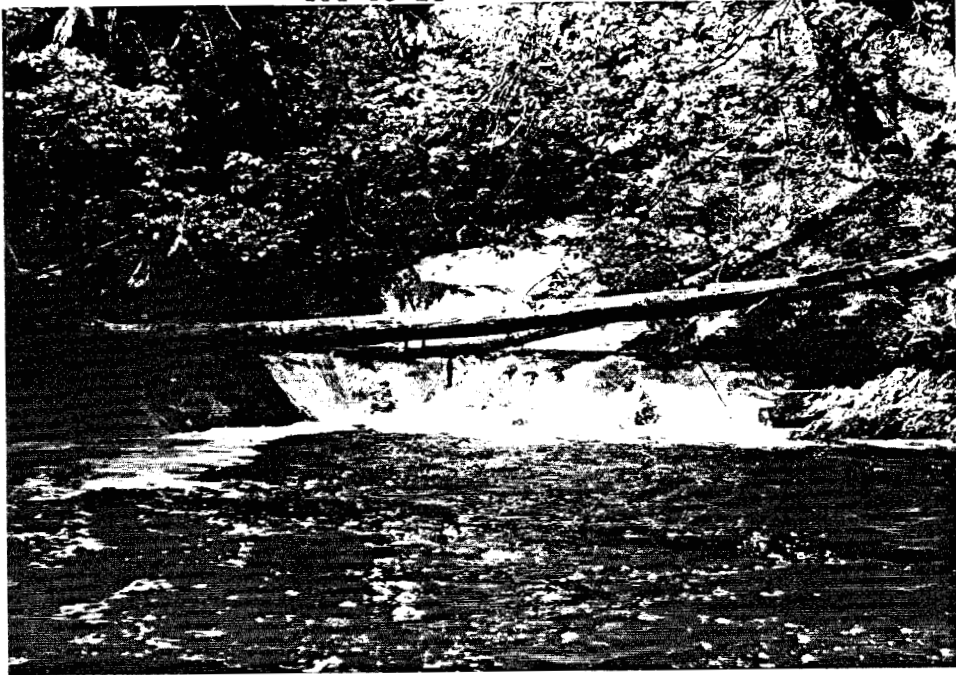




1. Poor ASA in ITZ.



2. 4 m. falls in Section 2.



3. Barrier falls at the end of the Section 7.

102-8-21

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	10	0	0					
2	100	15	5	75					
3	100	6.2	5	31					
4	100	6.2	0	0					
5	100	11	0	0					
6	100	11.5	0	0					
7	100	14	0	0					

Total 106m²
Available ASA below the barrier 75m²

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 102-80-21 Date 6/6/84

1. Reach	1	1	1	1	1	1	1		
2. Section	1	2	3	4	5	6	7		
3. Section Length (m)	100	100	100	100	100	100	100		
4. Gradient	2	9	3	15	3	4	5		
5. Water Quality	3	3	3	3	3	3	3		
6. Water Width a. channel	17	16	8.2	8.2	11	12	14		
b. water	10	15	6.2	6.2	11	11.5	14		
c. special character	-	-	-	-	-	-	-		
7. Water Type % SS	5	5	5	5	5	5	5		
SF	65	15	30	30	60	60	30		
US		20	5	10	5		15		
DF	30	60	60	55	30	35	50		
8. Undercut Banks (m) left	0	0	0	0	0	0	0		
right	0	0	0	0	0	0	0		
9. Debris Cover % small	0	0	0	0	0	0	0		
large	0	0	0	0	0	0	0		
10. Riparian Vegetation %	5	5	10	5	10	15	5		
11. Substrate %:									
a. boulders	10	25	30		60	60	70		
b. cobble		15	15		20	20	20		
c. gravel							10		
d. sand									
e. organic muck									
f. bedrock	90	60	55	100	20	20			
g. other									
12. ASA	0	5	5	0	0	0	0		
13. Gravel Shape	2	2	2	2	2	2	2		
14. Streambank Vegetation									
a. percentage	100	100	100	100	100	100	100		
b. type	B	B	B	B	B	B	B		
15. Average Depth (cm)	30	25	30	35	40	25	40		
16. Beaver Activity	5	5	5	5	5	5	5		
17. Potential Barrier	-	2	-	2	-	-	-		
18. Aquatic Vegetation									
a. type	2/3/1	3/1	3/1	3/1	3/1	3/2/1	3/1		
b. density	2/1/3	1/3	1/2	2/2	2/2	2/3/2	2		
19. Sampling	-	Y	-	-	-	-	Y		
20. Rearing Area	5	5	5	0	10	5	10		
21. Comments									

Section 1: The stream velocity is too fast and not enough cover is present for good rearing.

Section 2: A 4 m. barrier falls is present midway through the Section.

Section 4: An 18 to 20 m. barrier falls is present 35 m. into the Section. A position to take a photo could not be reached due to the very steep banks and deep water.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 6: A small tributary with an estimated flow of $.03 \text{ m}^3/\text{sec}$ enters from the right bank. The tributary contains a 5 m. bedrock barrier falls 50 m. from the mainstem. The tributary contains patches of ASA and rearing habitat below the falls. Temperature and pH were 10°C and 7.5 respectively. Substrate consisted of boulders and large cobble.

Section 7: Tributary with an estimated flow of $.03 - .04 \text{ m}^3/\text{sec}$. enters from the right bank near the end of the Section. No ASA and little rearing habitat is provided as a 2 m. probable barrier falls is present within 20 m. of the mainstem. The survey is discontinued at the end of Section 7. A series of large cascading stairstep waterfalls are visible beyond Section 7. The bedrock falls and high velocity whitewater are 150 to 200 m. long.

FISH SAMPLING FORM

ADF&G No. _____ Date 102-80-21 Stream Name 6/6/84

Survey Area A H₂O Temp. 10°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1355	1600	Ø	Section 2
2	1515	1545	Ø	Section 7

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-2 2. Historical Fish

Part II.

1. Stream Name Clarence Strait #5 2. ADF&G Catalog No.

3. USGS Map No. Craig C-1 4. Legal Location R86E, T73S, S-18

5. Latitude and Longitude 55°32'45", 132°05'15" 6. Agency Unit 05

7. Aerial Photo No. 0026, 1273, 79, 9-12-73, 02190 8. MGMT Area K29-713

9. Estimated Flow .04 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical logging

12. Temperature Sensitivity and/or origin 5,6

13. Access 2 14. Stream Temperature 7.25°C

15. pH 16. Intertidal Zone a. Gradient 5

b. Bottom type 1. fines 10 2. gravel/small cobble 90

3. large cobble/boulders/bedrock

c. ASA fair

d. Schooling in small bay only

e. Shellfish potential abalone and clam shells observed

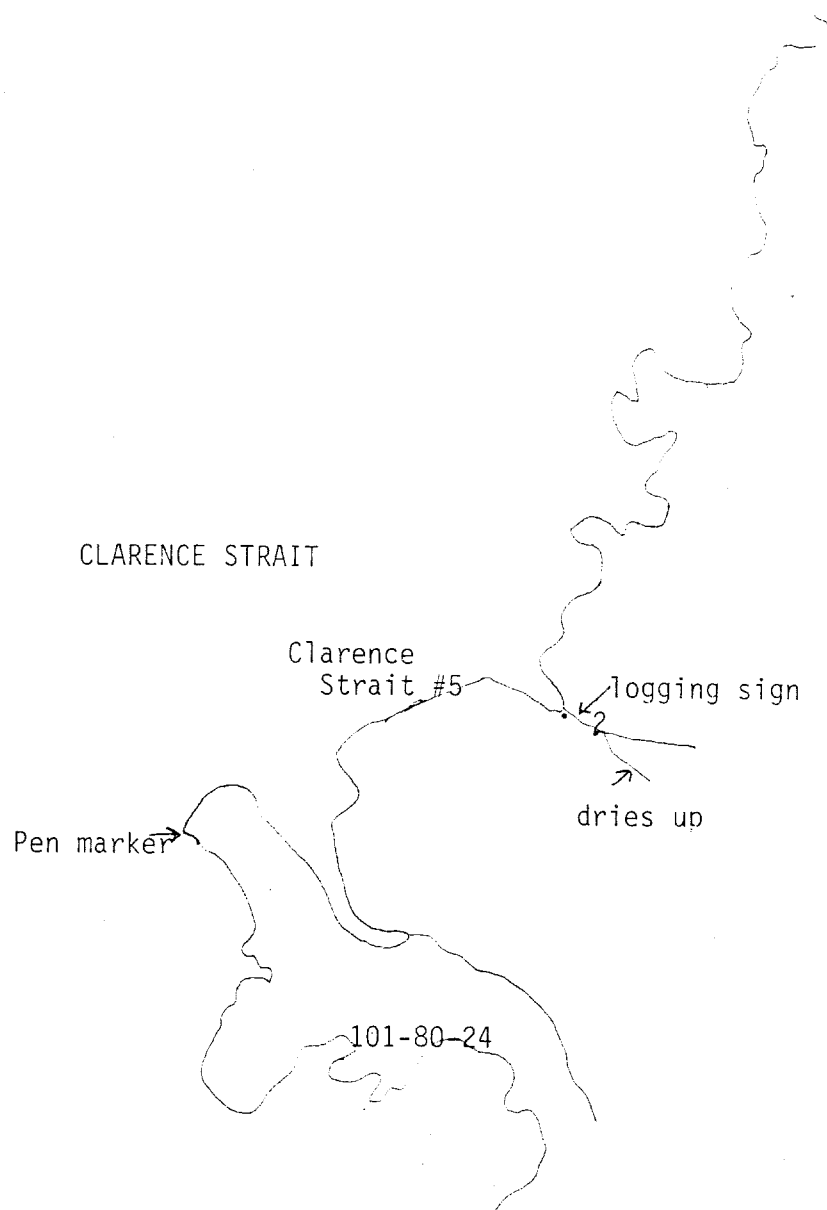
f. Anchorage good for skiff at mouth

17. Comments

About 30 m² of good substrate is present in the upper ITZ. The water depth is only 5 cm, however and a moderate to heavy amount of silt is present interstitially. What appears to be a logging road was found running north of the ITZ. Clarence Strait #5 shows signs of having been the site of a large logging operation. An old logging road runs north from the ITZ and the stream itself resembles a road more than a stream. The banks are very uniform, possibly from having logs slide down the streambed. The rearing habitat is poor quality due to a lack of debris, undercut banks, or overhanging riparian vegetation. Suitable substrate for ASA is present, but a high water flow would be necessary to make the substrate accessible to salmon. The stream appears to be intermittent. No rearing fish were observed or captured.

18. Investigators Burns/Cariello 19. Weather 3,1

20. Date 6/1/84 21. Time 1330-1445



Clarence Strait #5

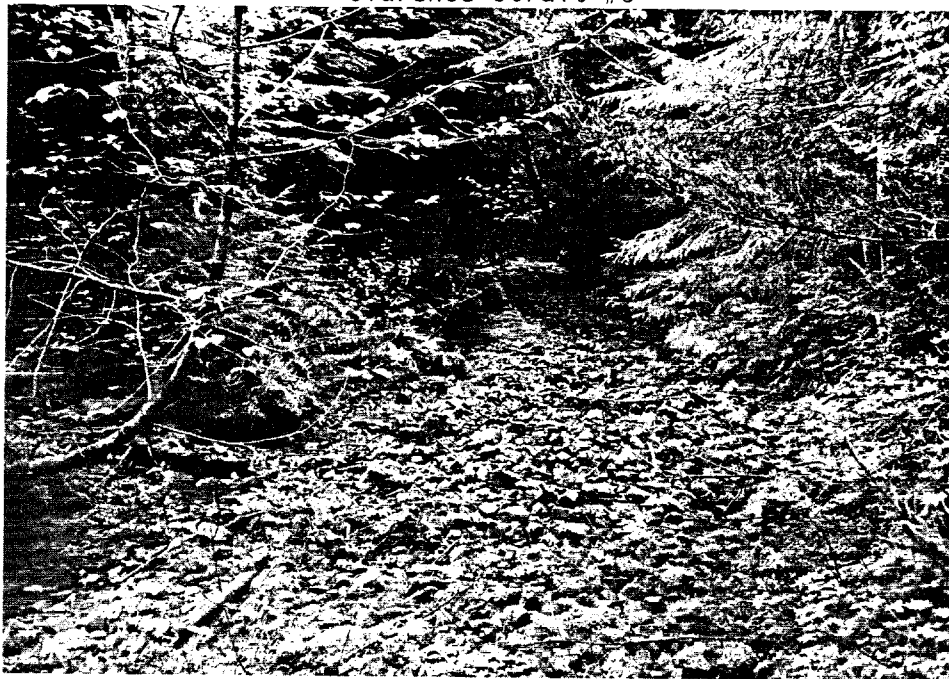


1. Upper ITZ



2. Section 1

Clarence Strait #5



3. Taken 125 m. up right fork.



4. Taken 100 m. up left fork.

Clarence Strait #5

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	2	50	100					
2	100	4	0	0					
Total				100m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name Clarence Strait ADF&G No. #5 Date 6/1/84

1. Reach	1	1							
2. Section	1	2							
3. Section Length (m)	100	100							
4. Gradient	1	3							
5. Water Quality	3	3							
6. Water Width a. channel	10	6							
b. water	2	4							
c. special character	-	-							
7. Water Type % SS	50	15							
SF	50	85							
DS									
DF									
8. Undercut Banks (m) left	25	1							
right	1	1							
9. Debris Cover % small	1	1							
large	1	1							
10. Riparian Vegetation %	10	15							
11. Substrate %:									
a. boulders									
b. cobble	75	75							
c. gravel	20	20							
d. sand	5	5							
e. organic muck									
f. bedrock									
g. other									
12. ASA	50	0							
13. Gravel Shape	2	2							
14. Streambank Vegetation									
a. percentage	100	100							
b. type	B	B							
15. Average Depth (cm)	10	2.5							
16. Beaver Activity	5	5							
17. Potential Barrier	3	6							
18. Aquatic Vegetation									
a. type	-	1/2							
b. density	-	3/3							
19. Sampling	Y	-							
20. Rearing Area	50	25							
21. Comments									

Section 1: Small debris has collected behind driftwood at the start of the Section making a probable barrier at present flow. Signs of handlogging are evident. Even aged alders compose the riparian vegetation on both sides of stream. Banks are very uniform, almost resembling a road. Rearing area poor quality due to lack of debris, undercut banks and overhanging vegetation.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 2: Stream forks at the start of Section. The right fork is surveyed. The present low flow is a barrier to adult salmon passage. The cobble substrate is suitable for spawning use, but the stream dries up completely 25 m. beyond the end of the Section. A dry rocky channel continues up the hill. Survey discontinued.

The left fork continues for about 200 m. before skunk cabbage begins growing in the stream and it appears the stream may be intermittent beyond here. The substrate up to this point is cobble that might possibly be utilized by coho at high flows. The active water width is 1 m., but the channel is 5-10 m. in width. No rearing fish were observed.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/1/84 Stream Name Pen Marker #2
 Survey Area A H₂O Temp. 7.25° C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1355	1445	Ø	Section 1

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas A 1-4 2. Historical Fish PS,SS

Part II.

1. Stream Name _____ 2. ADF&G Catalog No. 102-80-24

3. USGS Map No. Craig C-1 4. Legal Location R88E,T73S,S-17

5. Latitude and Longitude 55°32'30", 132°4'45" 6. Agency Unit 05

7. Aerial Photo No. 0026,1873,79,9-14-73 02190 8. MGMT Area K29-713

9. Estimated Flow .03 m³/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical logging

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7.5°C

15. pH 6.5 16. Intertidal Zone _____ a. Gradient 1.5

b. Bottom type 1. fines 85 2. gravel/small cobble 15

3. large cobble/boulders/bedrock _____

c. ASA fair

d. Schooling only in saltwater

e. Shellfish potential many mussels and some Dungeness crab evidence

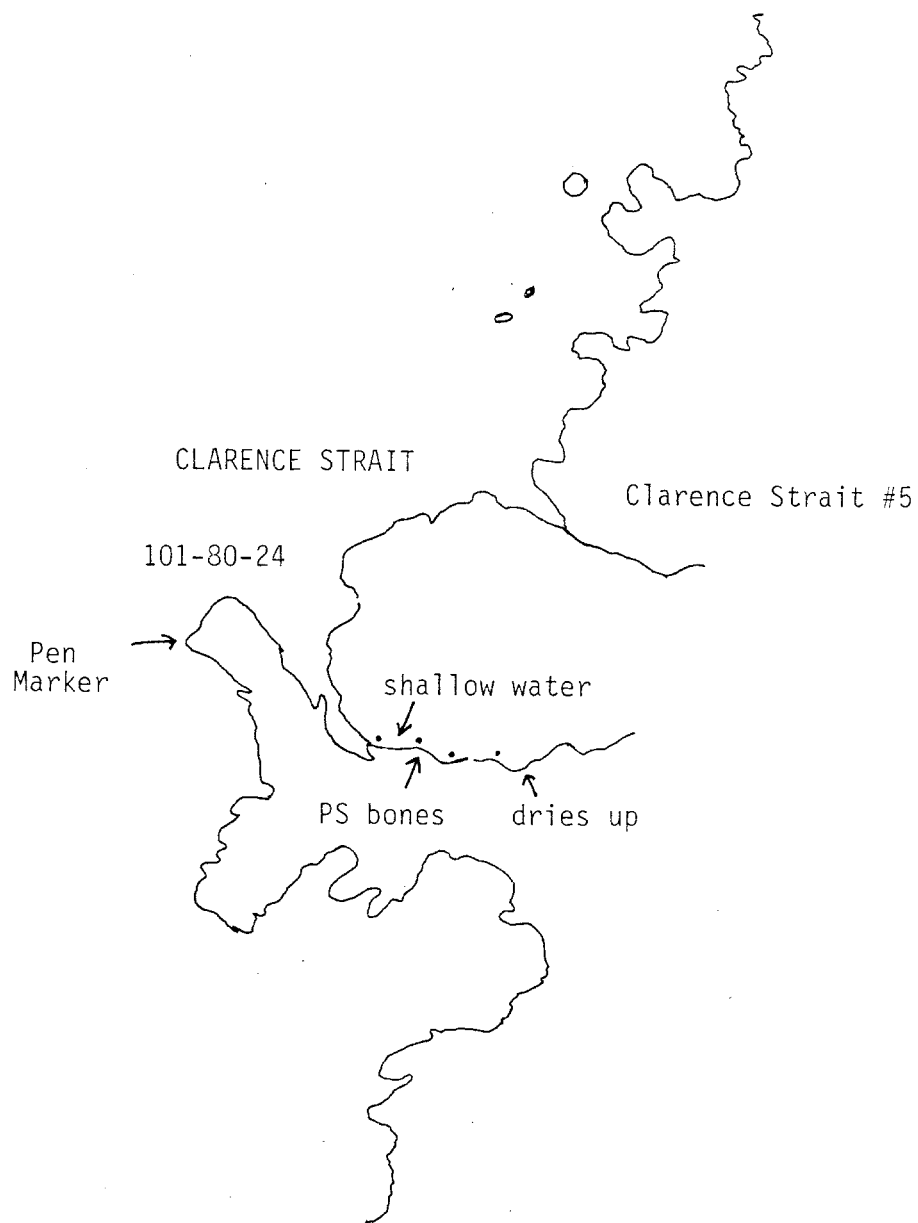
f. Anchorage fair

17. Comments

The upper ITZ contains a 30 m. stretch with usable gravel. The lower ITZ is all sand.
102-80-24 is a small stream that dries up within 500 m. of the beach. The stream is very shallow and more ASA might be available at a higher water stage. The substrate is rather compact, but PS bones were found throughout the survey area. The rearing area is limited by the shallow depth of the stream. No rearing fish were observed or captured.

18. Investigators Burns/Cariello 19. Weather 3

20. Date 6/1/84 -477- 21. Time 1030-1215

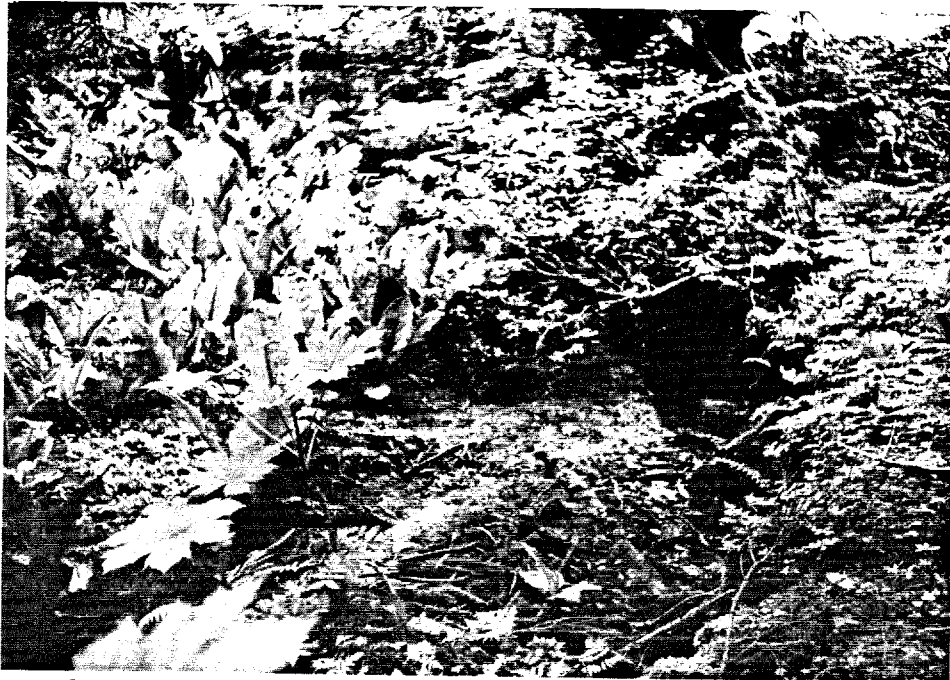




1. ITZ



2. Section 1



3. Possible low flow barrier in Section #4.

102-80-24

Section	Length (m)	Width (m)	ASA %	ASA Total	Section	Length (m)	Width (m)	ASA %	ASA Total
1	100	4.1	5	20.5					
2	100	2.8	5	14.0					
3	100	4.3	0	0					
4	100	2.0	0	0					
Total				34.5m ²					

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM

Stream Name _____ ADF&G No. 102-80-24 Date 6/1/84

1. Reach	1	1	2	2					
2. Section	1	2	3	4					
3. Section Length (m)	100	100	100	100					
4. Gradient	.75	1	1	1.5					
5. Water Quality	4	4	4	4					
6. Water Width a. channel	8	7	5.5	3					
b. water	4.1	2.8	4.3	2					
c. special character	-	-	-	-					
7. Water Type % SS	99	98	99	99					
SF	1	2	1	1					
DS									
DF									
8. Undercut Banks (m) left	10	50	50	50					
right	1	10	50	30					
9. Debris Cover % small	1	0	15	5					
large	1	5	35	30					
10. Riparian Vegetation %	1	5	10	25					
11. Substrate %:									
a. boulders									
b. cobble	10	10	10						
c. gravel	50	45	25	5					
d. sand	40	40	50	45					
e. organic muck		5	15	50					
f. bedrock									
g. other									
12. ASA	5	5	0	0					
13. Gravel Shape	2	2	2	2					
14. Streambank Vegetation									
a. percentage	10/90	100	100	100					
b. type	A/C	B	B	B					
15. Average Depth (cm)	2.5	5	10	7.5					
16. Beaver Activity	5	5	5	5					
17. Potential Barrier	-	-	-	6					
18. Aquatic Vegetation									
a. type	3/4/2	3	4	4					
b. density	1/2/3	1	3	3					
19. Sampling	-	Y	-	-					
20. Rearing Area	95	95	99	95					
21. Comments									

Section 1: Grass growing in streambed. Poor ASA due to slow water velocity and compact gravel and interstitial sand.

Section 2: Stream less than 2.5 cm. deep in places. The ASA is poor quality due to a layer of silt and organic muck covering most of the substrate.

Section 3: Stream enters an area with heavy debris cover. PS bones found on bank. Stream goes completely under a bank. Small feeder tributary from right bank, dark tan in color with no ASA, but some rearing habitat available.

BASELINE (LEVEL TWO) AQUATIC SURVEY FORM, continued

Section 4: Stream flow decreasing. Stream goes under the bank and is a probable barrier at present flow. Grass and skunk cabbage are growing in streambed and channel. More PS bones found on bank.

Survey discontinued. The gradient increases to 5 % and substrate size increases. The stream completely dries up 60 m. beyond end of survey.

FISH SAMPLING FORM

ADF&G No. 102-80-24 Date 6/1/84 Stream Name

Survey Area A H₂O Temp. 7.5°C Bait Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	1100	1210	Ø	Section 2

BASELINE AQUATIC SURVEY

Part I.

1. Survey Areas _____ 2. Historical Fish _____

Part II.

1. Stream Name Clarence Strait #6 2. ADF&G Catalog No. _____

3. USGS Map No. Craig C-1 4. Legal Location R86E,T3S,S-16

5. Latitude and Longitude 55°32'2", 132°, 2'30" 6. Agency Unit 05

7. Aerial Photo No. 0027,1273,3,9-12-73,02190 8. MGMT Area K29-713

9. Estimated Flow .04 m3/sec 10. Flow Stage 2

11. Land Use. a. present none observed b. Historical none observed

12. Temperature Sensitivity and/or origin 5

13. Access 2 14. Stream Temperature 7.5

15. pH 8 16. Intertidal Zone _____ a. Gradient 5.5

b. Bottom type 1. fines 20 2. gravel/small cobble 50

3. large cobble/boulders/bedrock 30

c. ASA poor - only good substrate is in lower ITZ.

d. Schooling only in Clarence Strait

e. Shellfish potential no evidence of shellfish

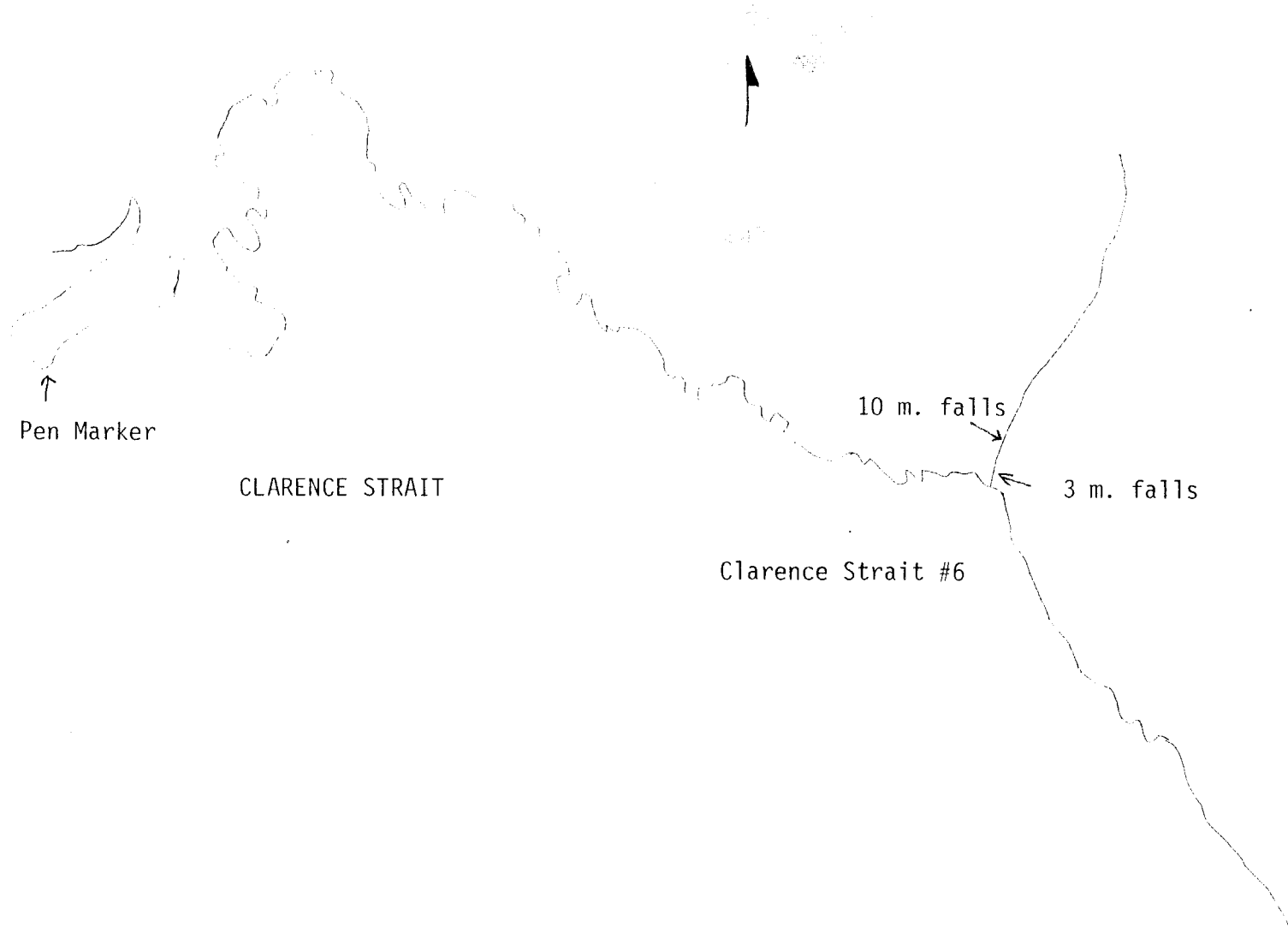
f. Anchorage good for skiff at mouth

17. Comments

Clarence Strait #6 has very limited fisheries potential. A 3 m. barrier falls is present 75 m. from the beach and at least two more 10 m. falls are present 200 m. further upstream. Only patches at ASA were present in the first 25 m. of the stream. This stretch contained the only good rearing habitat also. The substrate was primarily bedrock and boulders beyond the first 25 m. No rearing fish were observed or captured.

18. Investigators Burns/Cariello 19. Weather 3

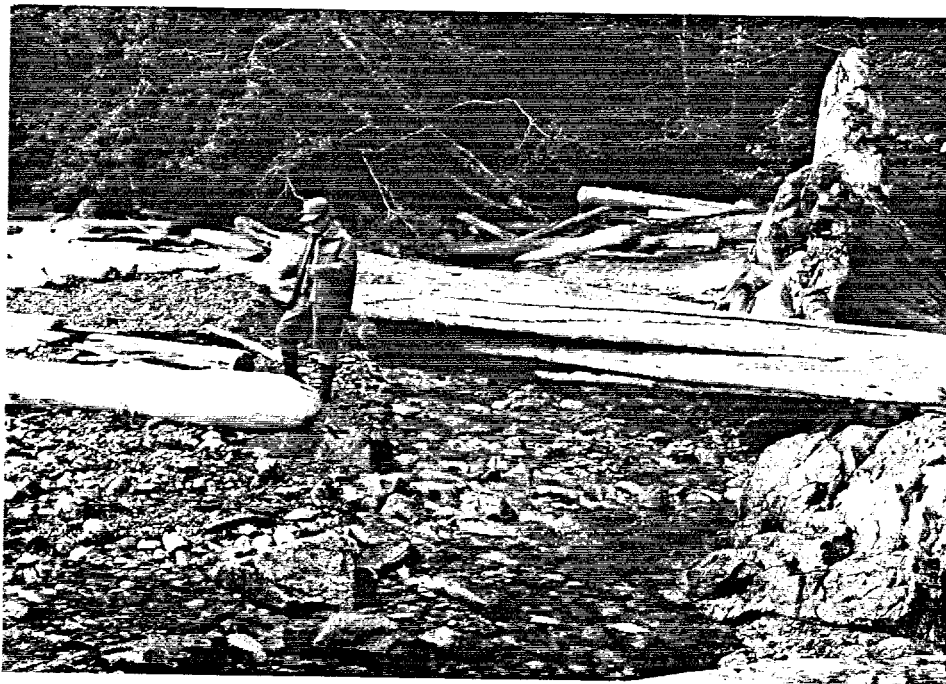
20. Date 6/1/84 21. Time 0900-1000



Clarence Strait #6



1. Lower ITZ



2. Upper ITZ

Clarence Strait #6



3. Looking at barrier falls over bedrock.

FISH SAMPLING FORM

ADF&G No. _____ Date 6/1/84 Stream Name Clarence Strait
 Survey Area _____ H₂O Temp. 7.5°C Bait #6 Braunswager

Trap No.	Time Set	Time Pulled	Species	Comment
1	0925	1000	Ø	no fry observed

AQUATIC SURVEYS HANDBOOK

BASELINE (Stream). This is a baseline field survey. It is designed to provide adequate baseline and summary information for management of unmanipulated habitats. It provides both measured and estimated information of individual parameters, as well as judgmental summaries on certain aspects of the stream environment. This level will be used for the update of the 1979 Tongass Land Management Plan. The survey is designed to be accomplished quickly and efficiently with a minimum of equipment and field time, yet still provide baseline information about the potential fish production, fisheries habitat, potential high-risk areas to development, and identification of possible enhancement sites.

Baseline surveys are generated by fieldwork and should contain enough information to answer questions about what fisheries habitat there are and relative amounts of it. There should also be adequate information to determine whether potential enhancement or rehabilitation opportunities exist. The data derived at Baseline is generally not statistically reliable within reasonable confidence limits.

Objective. To meet fish habitat management needs for streams not proposed for major land use activities or when time factors and priorities do not allow more intensive surveys.

Standards. Specific standards for procedures to accomplish Baseline are listed below. For quantitative data, they are minimum and for qualitative data, they are maximum. These standards should be interpreted to mean that at the minimum, data collected in the survey shall be at least as accurate as specified, and at least all the parameters listed should be included.

1. Identify the major types of streamside vegetation and fish species in the stream.
2. Visually identify aquatic vegetation in the stream.
3. Subjectively determine the source of water, bank stability along the stream, stream bottom material, streamflow stage, water color, barriers to upstream migration, and water impoundments.
4. Estimate the quality and area of salmonid spawning gravel.
5. Include juvenile salmon rearing area.
6. Include date and climatic conditions at time of survey.
7. Measure the stream gradient to the nearest percent.
8. Measure water width to the nearest $\frac{1}{2}$ meter, with a range finder or tape measure.
9. Establish a system of photographs for the stream.
10. Draw a schematic map for the stream.

11. Write a narrative describing sport fish potential, wildlife observations, land use influences, accessibility, and enhancement potentials.

When to Use. Baseline surveys are used when general observations are needed about the fishery habitat of a specific stream. It provides answers to questions like: 1) Where is the actual streamcourse in relation to habitat, or 2) Approximately how much spawning area is available?

How to Use. The fisheries biologist examines all the data and formulates a general answer. In addition, there are some specific interpretations and analysis that can be derived from the data. Examples of these are:

1. Available spawning area (gravels between 2 - 128 mm in diameter) contained in the survey area. This interpretation should be used with caution, as under no circumstances would any particular species of salmon utilize all that area to an optimum.
2. Amount of pool area.
3. Amount of debris in the survey area.
4. A rough idea of how stable the streambanks are.
5. Water temperature data may be used for tracking entry of different water sources to the stream, groundwater sources should be noted since they are frequently two or more degrees cooler.

Equipment Needed.

1. Baseline Survey Forms
2. Handbook reproduced on waterproof paper.
3. Field notebook
4. Pencils
5. Maps, USGS quads, and aerial photographs
6. 50 meter tape measure
7. Abney level or clinometer
8. Camera with film
9. Minnow traps (6) and bait
10. Tricaine methanesulfonate
11. Dip net
12. Fish measuring ruler (metric)
13. Range finder
14. Pocket altimeter
15. Compass
16. Scientific sampling permit

Procedure. There are several phases of data collection for a baseline survey: 1) preplanning before starting fieldwork, 2) data that is entered once for each survey area, 3) data that is entered once every 100 meters along the stream, and 4) office work to be done after the fieldwork.

Preplanning. Before starting fieldwork, the following information must be entered on Part 1 of survey form.

- | | |
|--------------------|---|
| 1. Survey Areas | Identify areas by letters and the number of sections surveyed. |
| 2. Historical Fish | List species present in escapement data by entering the appropriate species code. |
| | KS - King salmon DV - Dolly Varden |
| | SS - Silver salmon RT - Rainbow trout |
| | RS - Red salmon CT - Cutthroat trout |
| | CS - Chum salmon SM - Smelt |
| | PS - Pink salmon ST - Steelhead |
| | NP - Northern pike BY - Brook trout |
| | CO - Cottids GR - Grayling |
| | LT - Lake trout WH - Whitefish |
| | SB - Stickleback BU - Burbot |
| | OT - Other |

Data Entered Once per Stream Surveyed. The following items should be recorded on the second part of the survey form.

- | <u>Item</u> | <u>Explanation</u> |
|---------------------------|---|
| 1. Stream Name | Record the stream name as listed on the map or as commonly known. |
| 2. ADF&G Catalog No. | Enter appropriate State Fish and Game Catalog Number and sub-numbers for stream surveyed. |
| 3. USGS Map Number | Identify number of USGS Quadrangle containing the system. |
| 4. Legal Location | Identify the range, township, and sections of the subwatershed or survey area. |
| 5. Latitude and Longitude | Record the latitude and longitude to the nearest five seconds for the lower end of the survey area. Use appropriate geodetic scale to interpolate precise latitude and longitude off a USGS quad. |
| 6. Agency Unit | Enter the appropriate land area code as assigned to each agency. |
| | 02 Stikine 10-19 BLM |
| | 03 Chatham 20-29 National Park |
| | 04 Chugach 30-39 State Park System |
| | 05 Ketchikan 40-49 F&WS |
| | 50-59 Native Corp. |
| 7. Aerial Photo Number | If an aerial photo is used, record the flight line, roll, photo, year, and grid. |

8. Management Area Enter the appropriate agency subunit code and VCU number. (List of management area codes to be developed and distributed by each agency).
9. Estimated Flow Use Embury method if feasible, if not estimate.
10. Flow Stage Enter appropriate code for best estimate of flow at time of survey. (See glossary for diagram of terms.)
1 - low, 2 - normal, 3 - high.
11. Land Use
- a. Note any activities associated with man's present use or planned use such as logging, mining, recreation, roads, dumpsites, etc.
 - b. Note any evidence of historical land use such as logging (and approximate year), mining, abandoned cannery sites, etc.
12. Temperature Sensitivity and/or origin Enter appropriate code(s) describing source of water at that point on the stream.
- | | |
|-----------------|-----------------------|
| 1 - lake | 4 - muskeg |
| 2 - glacial | 5 - surface runoff |
| 3 - groundwater | 6 - subsurface runoff |
| | 7 - other |
13. Access Enter up to two codes from this list:
- 1 - Roaded (list road number)
 - 2 - Unroaded
14. Stream Temperature
15. Ph
16. Intertidal Zone If there is an intertidal zone within the survey area, take following data:
- a. Gradient in the intertidal zone measured with a clinometer or abney level. Record to nearest percent.
 - b. Bottom type - estimate:
 - (1) % fines (2 mm or smaller)
 - (2) % gravel/small cobble (2-128 mm)
 - (3) % large cobble/boulders/bedrock (128 mm)

The sum should equal 100%
 - c. Available spawning area: estimate quality as poor, fair, good, or excellent.

- d. Note yes or no whether schooling areas are present in the estuary or lower sections of the streams; if yes, describe in comments.
 - e. If survey coincides with low tide, note yes or no, shellfish potential and if yes, describe in comments.
 - f. Describe known anchorage or ones used during the survey and their exposure.
17. Comments and Narrative Add any comments that are important to the aquatic resources or required to answer other items on the list. Generalize about the quality and quantity of the stream's spawning and rearing habitat.
18. Investigators Enter names of people doing the fieldwork.
19. Weather Conditions Enter the appropriate code:
- | | | |
|-----------|------------|-------------------|
| 1 - rain | 3 - cloudy | 5 - fog |
| 2 - clear | 4 - snow | 6 - partly cloudy |
- If there is an unusual situation, enter in comments.
20. Date Enter numerical designation for Month/Day/Year.
21. Time Record in military time.

Photos. Take one black and white print photo at each survey area and every readily identifiable change in habitat type, unique situation, barrier falls, and the intertidal area. Photos will be taken facing upstream unless specifically noted in the photo record.

Data Entered Once Every Section

1. Reach Number each successive reach, defined as section of stream of similar gradient, substrate, and bank type. Boundaries between reaches may be definite like a migration barrier, or they may be very subtle gradual changes of habitat.
2. Section Number The stream is divided into sequential samples every 100 meters. Numbering should start at the furthest downstream point and increase consecutively upstream. Sections in the intertidal zone should be labeled with the code "I".
3. Section Length (m) 100 m in length. Note if less than 100 m.
4. Gradient Measure gradient over the section being surveyed with a clinometer, or abney level. Record to nearest percent.

5. Water Quality

Enter appropriate color code:

- 1 - clear
- 2 - glacial
- 3 - light tan
- 4 - tan

6. Water Width

- a) Record active channel width to the nearest 1/10 meter.
- b) Record water width to the nearest 1/10 meter. Width of multiple channels should be recorded separately.
- c) Identify 1) channel braiding 2) back-water sloughs and 3) off-channel areas.

7. Water Type. Partition each section by indicating the percentage of each of the following water types:

SS - shallow (<50 cm deep)
slow (<30 cm/sec)

SF - shallow (<50 cm deep)
fast (>30 cm/sec)

DS - deep (>50 cm deep)
slow (<30 cm/sec)

DF - deep (>50 cm deep)
fast (>30 cm/sec)

8. Undercut Banks

Record length of undercut bank (in meters) for each bank.

9. Debris Cover

Percent area covered by debris. Indicate whether the debris is composed of small (10 cm diameter) or large (10 cm diameter) materials. This includes both suspended and submerged debris.

10. Riparian Vegetation

Percent of area covered by riparian vegetation. (This is vegetation directly above the water surface providing cover for fish).

11. Substrate

Indicate the percent of each stream bottom substrate type according to the following:

- 1) boulders (250 mm, 10")
- 2) cobble (65-250 mm, 2.5-10")
- 3) gravel (2-64 mm)
- 4) sand (0.1-2.0 mm)
- 5) organic muck
- 6) other, coded as (a) bedrock (b) sunken log (c) other

12. ASA Percent available spawning area.
13. Gravel Shape Indicate gravel shape as:
- 1) flat
 - 2) angular
 - 3) round
14. Streambank Vegetation Quality describe the upland or upper stream-bank vegetation, other than the canopy, coded as follows:
- A. Flood plains-spruce/devils club/alder/cottonwood/salmonberry/stink current
 - B. Footslopes (not flooded, good containment)
- Hemlock, Blueberry
 - C. Edge of Muskegs
Blueberry (dense)
Sedge
Hemlock (sparse)
Lodge pole pine
Crowberry
Deer cabbage
 - D. Unstable ground
Alder/Salmonberry
Hemlock/alder/salmonberry
Muskeg
Sedge
Maidenhair Fern
Liverwort
15. Average Depth Measure the average depth (cm) of the stream at the Section site.
16. Beaver Activity Enter the appropriate code:
- 1 - active beaver dam
 - 2 - inactive beaver dam, good repair
 - 3 - inactive beaver dam, poor repair
 - 4 - old dam, little effect on stream
 - 5 - no beaver activity
 - 6 - beaver activity, but no dams
 - 7 - old beaver activity, but no dams
17. Potential Barrier 1) Code as:
- | | |
|----------------|----------------|
| 1 - velocity | 4 - beaver dam |
| 2 - falls | 5 - manmade |
| 3 - debris jam | 6 - other |

Photograph the barrier and describe it in the Comment Section.

18. Aquatic Vegetation

1) Type of aquatic vegetation -

Enter as:

- 1 - mosses
- 2 - filamentous algae
- 3 - periphyton
- 4 - vascular plants

2) Density of Aquatic Vegetation -

Enter as:

- 1 - dense (abundant vegetation on rocks or over the entire area)
- 2 - medium ($\frac{1}{2}$ of all rocks with vegetation)
- 3 - sparse (vegetation seldom observed)

19. Sampling

Indicate whether sampling was done in corresponding section.

20. Rearing Area

Estimate percent of the sample section which is good salmonid rearing area. Describe qualitatively the rearing habitat under comments.

21. Comments

Office Work Done After Fieldwork. After completing fieldwork, the following things should be done to the data in office.

1. Diagrammatic Map

Draw a single line schematic map using the information from the survey. The scale should be 4" to the mile at a minimum. One way to do it is trace the streamcourse over an aerial photo, then mark on the map:

- a. Notations marking boundaries of the 100 m sections.
- b. Upper limits of spawning area if known.
- c. Barriers.
- d. Upper limits of anadromous habitat if known.
- e. Obvious soil hazard conditions such as V-notches, slumps, mass wasting, blue clay, braided stream channels, and wind-throw areas as they relate to the stream.

- f. Water flow direction.
 - g. Where all tributaries enter.
2. Narrative
- Write a general narrative highlighting:
- a. Special entries on the diagrammatic map.
 - b. Summarizing anything unusual from the comments sections.
 - c. Generalize about the quality of spawning and rearing habitat.
 - d. Explain any deviations from the prescribed survey procedure.
3. Photos
- a. Mount photos on paper and type a clear legend under each one. Include in the legend:
 - (1) date
 - (2) survey area by river mile
 - (3) section number
 - b. Establish a filing system for the negatives.
4. Binding
- Arrange forms and photos for an entire stream or survey area into a booklet. Put narrative first, then schematic map(s), forms in sequential order with its accompanying photos. If the stream is divided into survey areas, arrange all forms relating to Section A first, followed by B, etc.

Preliminary IRI Data

- 1. Section Number Record the corresponding Baseline Section Number.
- 2. Channel Type
- 3. Riparian Vegetation Class Insert Riparian Vegetation I.D. Legend here.
- 4. Incision Depth For all channel types measure the slope length from the lower bank/upper bank boundary to the next discernable slope break (terminus of the upper bank). A range finder or stadia rod is used to make this measurement.

5. Lower Bank Composition

After digging into the lower bank in several places, indicate the percent of each stream bank substrate type according to the following:

- a) Bedrock or boulders (10 in)
- b) Rubble (5.0 in to 10.0 in)
- c) Cobbles (2.5 in to 10.0 in)
- d) Decomposed organic material
- e) Gravel (2.0 mm to 2.5 in)
- f) Sands & silt (2.0 mm)

6. Bed Substrate Composition

Indicate the percent of each stream bottom substrate type according to the following:

- a) Predominantly bedrock and boulders
- b) Subangular to rounded rubble (5.0 - 10 in) and cobbles (2.5 - 5.0 in)
- c) Course gravel (1.0 - 2.5 in)
- d) Mixed fine gravels and sands
- e) Silt-clay deposits in active flow

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